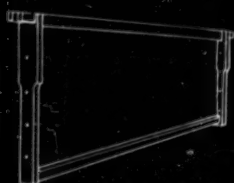


AMERICAN BEE JOURNAL

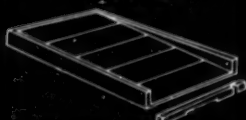


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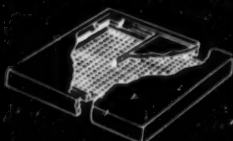
Volume 93, No. 10



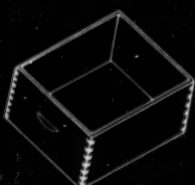
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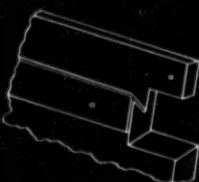
"LEV-L DRAIN"
BOTTOM BOARD



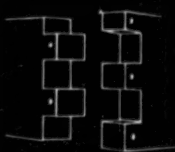
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Last calls for queens in 1953.

We hope to have enough good summer-reared queens to fill all late orders through
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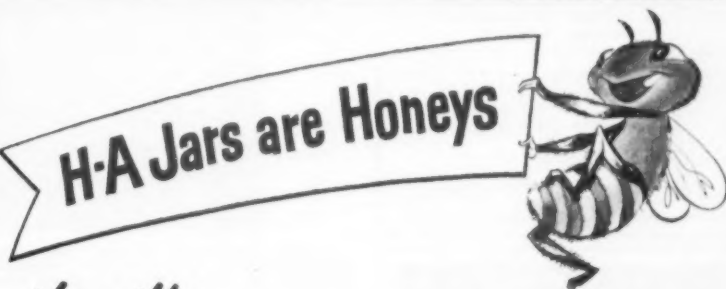
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Condensed to save you time.
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BEEES and QUEENS
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Booking orders now.
Over 30 years a shipper.
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With the Pellett Memorial proposed on page 399, this picture is timely. It shows Frank and Ray Anderson, Field Reporter for Farm Journal, examining brome grass seeded at the Honey Plant Gardens (the Pellett farm) in 1907. Pellett was probably the first to try brome grass in Iowa. (Photo by Farm Journal)

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Vol. 93, No. 10

October, 1953

THE AMERICAN BEE JOURNAL

HAMILTON, ILLINOIS

Editor—G. H. Cale
Associate Editors—M. G. Dadant, Roy A. Grout
Managing Editor—Adelaide Fraser

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Charles E. Rumbel, Ringtown, Pennsylvania, holds a comb of brood that shows the result of the regular egg laying of a good queen. He says that the fifth bee from the left side on the top bar is the queen taking a look around. These bees did a fine job of pollinating apples to help produce a big crop.

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OUR COVER PICTURE

The Press Service of the United States Department of Agriculture, Office of Information, released this picture to us to illustrate one of the many choice uses of honey which beekeepers can publicize in October during the honey marketing campaign. Mild, delicate-flavored honey is an ideal sweetener for fresh fruits such as grapefruit, berries and peaches. "Grapefruit Supreme," as prepared by a famous hotel, is made by cutting out the center of the fruit, filling the hollow with mild honey, and refrigerating several hours.

Head's Queens Are Tops.

Dadant's Starline Hybrids
and Italians

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Crossett, Ark.

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John S. Shackelford

Rio Oso, California

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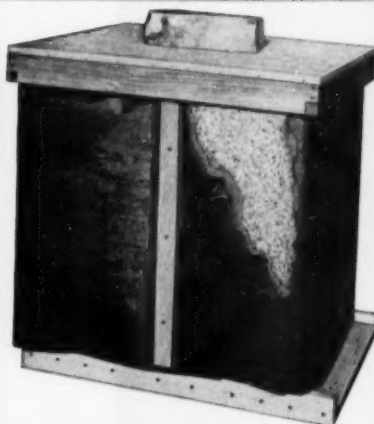
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Made to fit a 2 story 10 frame Langstroth Hive.
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Dadant's Starline Hybrid Queens
Garon's Three-Banded Italian Queens

PRICES:

	Italians	Starlines
1-24	\$.80	\$1.20
25-99	.75	1.15
100-up	.70	1.00

Queens Air Mailed, Clipped and Painted, if desired, at no extra charges.

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QUEENS

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24-99 1.25
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Three-banded Italians Only

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We have them—Hollopeter goldenrod-aster reared young Italians.

PRICES—

1-9, \$1.00 each; 10-24, 90c; 25-49, 80c; 50-99, 75c; 100-up, 70c.

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The leading Rabbit Farming Magazine. Explains the growing meat rabbit industry. Non-fancy. Est. 1931. 3 years \$2.00; 1 year \$1.00; Sample dime.

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CARTONS for 6—10-Lb. Cans or Pails, Packed 25	4.65 Per Bundle
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See our catalog for prices on quantities.



G. Chester Freeman, U.S.D.A. Production and Marketing Administration.

For October, Month of National Honey Week (Oct. 26-31)

This Is Being Done for You - - What Will You Do?

This is a summary of what is to be done this month by the United States Department of Agriculture through the Production and Marketing Administration under the leadership of G. Chester Freeman (Food Distribution Branch of the Food Trades Division); with the cooperation of the Marketing Committee of the Federation, under the Chairmanship of S. Joaquin Watkins.

IT HAS been estimated that last year's honey promotion program resulted in the movement of over 10,000,000 more pounds of honey through normal trade channels than during the 1951 season. This record was achieved in spite of the fact that in 1952 the industry was faced with the largest honey crop in history and gives sufficient answer to those who questioned the industry's ability to enlarge the normal market outlets for honey.

This example of all segments of the industry joining forces in a self-help program was very gratifying, especially to those in the Food Trades Division who played no small part in making this accomplishment possible. Secretary of Agriculture Benson has repeatedly said that the government should strive toward helping the individual to help himself and that with the wholehearted cooperation of producers, processors, and distributors, many of our most vexing marketing problems can be solved while lessening the dependence of producers on direct governmental assistance.

Heartening as the experience was last year, the job has only begun. To assure a stable and expanding market for honey, the industry's efforts must be redoubled during this present campaign and these efforts must be maintained at a high pitch during future years.

The Department of Agriculture is again lending assistance to the pro-

gram this year. For several months Department representatives have been working with state and local beekeepers and other honey industry groups. They have enlisted the cooperation of food distributors and allied groups—food wholesalers, retailers, food service establishments, bakers, confectioners, ice cream manufacturers and others, at both national and local levels, who, through intensive advertising and merchandizing, can help stimulate increased sales of honey. Food editors and directors of radio and TV programs have been alerted to the program.

But, intensive as the support of the campaign may be by the Department of Agriculture and by the food trade and allied groups, these efforts will be effective only to the extent that honey producers do the primary job of organizing and carrying on with this promotion. By profiting from the mistakes of the past, by diligent and continuous efforts in each community, the beekeepers of America have an outstanding opportunity to strengthen their industry and permanently enlarge their markets. With such efforts, the 1953 honey campaign and the campaigns of future years will be assured of success.

The U.S.D.A. Production and Marketing Administration Midwest Area, 623 South Wabash Avenue, Chicago 5, has produced a kit of

helpful materials for National Honey Week which contains a general plan for National Honey Week in your community, approaches to merchants, restaurants, suggestions for displays, news releases, feature articles for newspapers, radio or TV. This is a many page mimeographed aid which you can get from the address just given. With this in hand you will have a ready-made book of directions which will let you go to work with decision and purpose.

L. P. Baker, Glencoe, Illinois, just sent a letter prepared by Ralph Bessey, president of the Illinois State Beekeepers Association, which has been mailed to all members from which we quote: "We producers owe it to ourselves to surpass the job we did in 1952. Honey is our business. Promoting honey is our job. The USDA plans a solid promotional job, but the job of getting cooperation at local levels is yours. Get the local food stores and bakeries to display and advertise honey. Ask the local radio and TV stations to carry spot announcements, to interview beekeepers, to suggest ways of using honey; persuade the restaurants to serve and publicize honey. Get a copy of the Honey Month Kit prepared by the Department, from your State Marketing Chairman, 421 Jackson, Glencoe, Ill."

Remember, honey is our business. Promoting honey is our job. What are you going to do?



Edward Lloyd Sechrist

In the passing of Edward Lloyd Sechrist, we have lost one of the best known and most well informed and experienced beekeepers. His colorful personality and his genius for seeing well ahead made him a leader whose place cannot be filled.



ON September 9th, after an illness following a stroke, Edward Lloyd Sechrist passed away quietly at his home in Escondido, California. His wife, Alice, writes: "We must not regret his going as it means release from much misery." No, Alice, we don't regret his winning through to a larger life but we will miss him.

Sechrist was cosmopolitan in experience having kept bees in Africa, Haiti, Tahiti, Maryland, Ohio and California. In writing the preface for his book "Honey Getting" which we published in 1944, Sechrist said: "A study of the fundamentals of beekeeping has not hitherto been available in compact and usable form. In the belief that a need exists for such a study, Honey Getting is offered. Any originality it may possess lies in the emphasis it places

on the Clear Brood Nest Method of Apiary Management and Colony Balance in Queen Introduction." Those two ideas were a distinct contribution to our thinking.

In the same book in an Appreciation, I said: "Whatever part I may have borne in the preparation of this book, has rested on an association with the author which has lasted a quarter of a century - - - Edward Lloyd Sechrist has brought to beekeeping all those qualities that make greatness in human accomplishment; a lifetime of experience, close observation, high position, unselfish devotion and extraordinary analysis. This book sums it all up in a fundamental conception of scientific apiculture so new and refreshing as to be revolutionary.

"Sechrist is no catch-as-catch-can rambler but a commercial honey producer who has kept bees for profit under the four suns; California, Ohio, Maryland, Africa, Haiti and Tahiti in the South Seas; long

one of Uncle Sam's beekeeping aces in the Office of Bee Culture, U.S.D.A.; the first to study costs in relation to crops, locations and management."

In addition to "Honey Getting," Sechrist was coauthor of "Scientific Beekeeping," with Dana McFarland, a research engineer, published in 1948; and of "The Beemaster" outlining applied thermodynamics (hive heating) in apiculture, published in 1947.

His numerous articles that appeared constantly in the various bee magazines have long been familiar to thousands of beekeepers. Farewell, friend. We shall miss you always. To Alice Sechrist who is still in the home in Escondido, we say: "What a privilege you have had and what a loss you have sustained. But because of Lloyd and what he brought to you we know you will carry through and we wish you well.

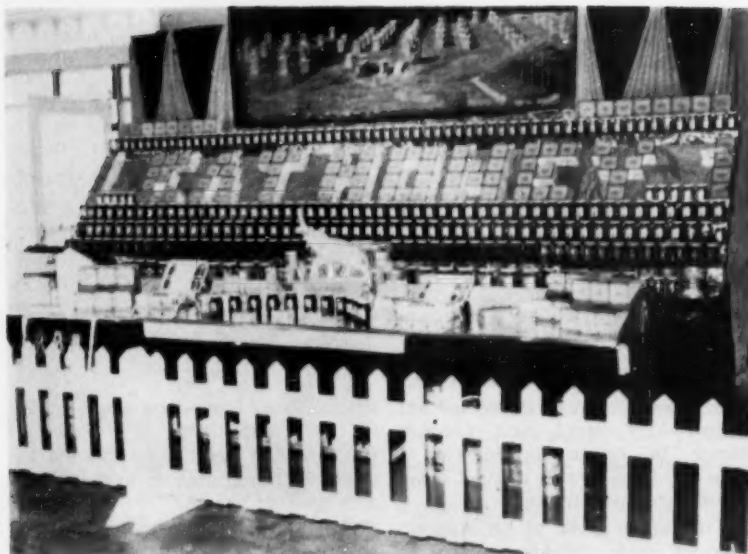
G. H. Cale, Hamilton, Illinois

Edward and Alice, likely when they lived in Ft. Bragg, California.

Sechrist home in Tahiti. Alice on porch.



Illinois State Fair



Peterson.....

Edwin Peterson, Kewanee, Illinois, won sweepstakes at the Illinois 1953 State Fair for greatest number of winning points and also placed third for the best display.



Wallanchee.....

William Wallanches, Downer's Grove, placed first for best display. Gov. Stratton presents trophy to Mrs. Wallanches. (State Fair Official Photo)

Meetings

Connecticut Beekeepers Assoc. Hartford, October 17

The fall meeting of the Connecticut Beekeepers Assoc. will be held on October 17, the third Saturday of the month. The place will be the Hartford Y.M.C.A., corner of Pearl and Jewel streets, Hartford, Conn. It is located northeast of the State Capitol building. Lunch will be served in the Y.M.C.A. Cafeteria.

Scheduled speaker for the day will be Prof. Frank Shaw of Amherst University, Mass. His talk will be on a recent trip through the south. Slides will be shown of this trip. Mr. Shaw is head of the beekeeping department at Amherst.

Beekeepers and friends interested in bees are invited to attend as the program will be full of interest.

Philemon J. Hewitt, Jr.
Chairman of Publicity

Report of New Hampshire Annual Meeting

At the annual meeting of the New Hampshire Beekeepers Association in Candia on August 15, 1953, some 50 members elected the following officers for the coming year: Thomas Moore, M.D. of Bradford, president; Commander C. R. Johnson of New Boston, vice president; and Hermann N. Sander, secretary-treasurer. Lawrence Rising of E. Andover, the retiring president, presided.

Prof. Jesse R. Hepler of Durham and Mrs. Henry Holt of Manchester were reelected to the Executive Committee for a term of three years. Other members of the committee are Prof. E. J. Rasmussen, of Durham, Phillip Tuttle of Wilton and Walter Berry of Chester.

A program committee was appointed consisting of Commander C. R. Johnson, Henry Holt, Cameron Paine, Henry Turner, Walter Berry and H. N. Sander, M.D.

An interesting and informative afternoon ensued with talks by Prof. J. R. Hepler on "Seventy Years of Beekeeping," Lawrence Rising on "Nitrous Oxide in the Transportation of Bees," Mr. Lundeman on "Predatory Animals and Means of Combating Them" and Cameron Paine on "Important Points in Wintering Bees."

Plans were discussed for the exhibition of bees and honey by members of the association at some of the coming county fairs.

H. N. Sander, Sec'y



A Living Memorial To Frank C. Pellett

A little more than a year ago, a committee was appointed by the Iowa State Horticultural Society to investigate the possibilities of a suitable memorial for the late Frank C. Pellett.

The committee was composed of three members from the Society and three from the Iowa Beekeepers Association. It met in late summer of 1952 and after consultation with the Pellett family recommended that the five acre wild life and wild flower refuge set aside by Mr. Pellett some 40 years ago on his farm at Atlantic, Iowa, be used as such a memorial.

Title to the tract will remain with the Pellett family. The memorial will take the form of making the tract available to those who are interested, the erection of a suitable entrance with plaques or inscriptions,

the fencing of the area, the identification and marking of the many species of plants, shrubs and trees growing there; the laying out of suitable paths and trails and possibly the addition of other plant material as it becomes available, all aimed at the perpetuation of the plot in much the same manner he would have maintained it had he lived to do so.

It is intended as a memorial to the accomplishments as well as an honor to the memory of an individual and every effort will be made to develop it in harmony with the life and the philosophy of the one it memorializes.

For that reason it will be plain and practical. Permanence without extravagance will be the watchword. Necessary funds are being solicited

from all those who had an interest in his work and the number of contributors will carry importance above that of the total amount of contributions.

The suggestion has been made that the memorial be completed and the dedication be held on his birth date of July 12, 1954, possibly as a part of a summer meeting of the Iowa State Horticultural Society or the Iowa Beekeepers Association, or both.

Contributions toward this memorial should be mailed without undue delay to Glenn O. Jones, Chairman, Pellett Memorial Committee, Atlantic, Iowa. A complete list of individual donors will be made public and will become a part of the memorial.

Seed Stocks Heavy . . .

It appears that government stock of some legume seeds, particularly alfalfa and Ladino are excessive. It was proposed that the government supply be dumped at half prices. This has been averted through ef-

forts of west coast seedsmen. The seeds on hand will now be offered on a bid basis, half this year and half next.

Support seems unlikely. Prices eventually will stabilize on a competitive economy. A California paper suggests that in such a case

"California will be the competitive kingpin of the nation." Undoubtedly their conditions are such that maximum harvests of seed can be obtained. But a balanced rotation still calls for legumes. Other farmers may consider their seed crops only incidental to good farming.

Laughing Gas . . .

Ray D. Brown, Inspector, Del Rio, Tenn., recently gave a demonstration on the use of ammonium nitrate in subduing cross bees. He uses a 33½ per cent ammonium nitrate fertilizer. Three tablespoonfuls are dropped on coals in a hot smoker and the bees are gassed at the entrance and between parts until they quiet and it is possible to handle even the crossiest colonies. The heating of the ammonium nitrate releases water and nitrous oxide. Nitrous oxide is an anesthetic commonly used by dentists in their work.

An article by Hans Geng in the May issue of the American Bee Journal gave his experiences on the use of laughing gas as he calls it.

Use of nitrous oxide in the smoker for moving bees was also reported by Dr. Jamieson who lectured at the Hamilton Tri-State meeting. Bees apparently may be moved short distances with few remembering to return to their old location. But the lethal dose can be applied for only three or four minutes or the effects are bad on the adult bees.

Brown also uses it for requeening and for moving bees short distances. Bees seemingly do not regain their memory when they are moved after having been subdued with ammonium nitrate.

We have asked Brown for an article covering his experiences with this substance.

Plurality . . .

George Rea of Reynoldsville, Pennsylvania, says that the general use of the two-story hive for brood probably has increased the amount of plurality of queens which now seems to be a common thing. That is a reasonable assumption because each of two or more queens can range through either one of the two hive bodies. Plurality is rather common. It does not continue through an entire season but there are times in many of these colonies with two or more hive bodies for brood rearing when there will be two queens laying at the same time, usually a daughter and a mother.

In the Carolinas—Changes . . .

In the Carolinas (and elsewhere in the South) agriculture has changed from a cotton economy to a diversified agricultural policy which includes permanent pastures and the use of legumes. At the meeting at Lawrenceburg, Tennessee, County Agent Ring stated that his county grows considerable vetch which is a good honey plant; crimson clover and Ladino also figure in the change of agriculture. Ladino apparently yields honey. In many places it does not yield enough to be noticeable or to figure in any way in surplus production.

Pollination practices have grieved the beekeepers of the Southeast. Some farmers producing seed cooperate in setting up bees to serve them for their own pollination purposes, hiring a beekeeper to take care of the bees for the honey obtained. Since the crops under

pollination are honey plants, this is a good deal both ways.

Probably half the beekeepers in the Carolinas and in Tennessee are still keeping bees in log gums or box hives. However, those who keep bees in modern hives are very up-to-date beekeepers, professional people or people engaged in other occupations who have bees as a sideline and yet a serious one. They are real commercial beekeepers just the same.

In South Carolina, bees are used in the pollination of cantaloupe, cucumber, fruit, crimson clover. The average rental for bees is about \$2.50 a colony.

Supersedure on New Combs . . .

Supersedure of the queens of package bee colonies that are hived on foundation to be drawn into new combs is often quite heavy. This may be due to the fact that the queen lays faster than the bees draw comb and that she sometimes lays two or more eggs in a cell. The bees seem to consider that supersedure is proper under these circumstances, so the amount of supersedure is heavier when all foundation is used than it is when part foundation and part combs are used or all drawn combs are used in hiving and establishing package bees.

Nebraska Regulation . . .

Any beekeeper, dealer, firm or organization desiring to move into Nebraska colonies of bees or used equipment shall notify the State Apiary Inspector of his intentions by providing the following information at least ten days before the entry of such material:

1. A copy of a valid certificate of inspection signed by the entomologist, apiary inspector, or other responsible official of the state of origin.
2. A list of proposed beeyard locations where colonies can be inspected in the state.

The latter part of July, a Missouri beekeeper was arrested and fined in a Geneva court for illegal entry in Nebraska, just from failure to provide a health certificate showing that the bees were free from disease and failure to secure a Nebraska permit.

(C. J. Walstrom, Nebraska)

Odd Places for Bees . . .

An apiary inspector finds bees in many odd places—washing machines, wooden beer cases, grain drills, auto cushions, auto gas tanks, wooden kegs and 60 pound honey cans. I have taken bees from all of them. I have also inspected colonies on porch railings of beekeepers' residences and also on the bay window roof, atop an old school bus and similar odd places.

(Melvin H. Beck, Warren, Minnesota)

October

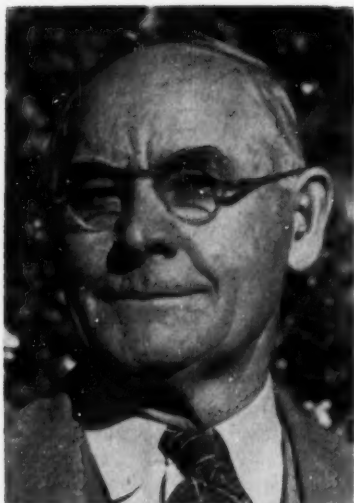
SPOTLIGHT



**Dr. Leonard Haseman and L. F. Childers demonstrating the use of sulfa sirup
at the University of Missouri.**



American Foulbrood and Nosema



Dr. Haseman, above, and L. F. Childers introduced the use of sulfathiazole in the control of American foulbrood.

The Sulfathiazole Control for American Foulbrood

by Dr. Leonard Haseman

Chairman, Department of Entomology
Missouri College of Agriculture

DURING the last half century, except for the past very few years, *Bacillus larvae*, the causative agent of American foulbrood, has been considered the "number one" enemy of beekeeping by most beekeepers and all those interested in bee disease control in this country. It was once described as racing through apiaries like wild fire. In 1916 when the writer first began his study of this disease by introducing infected combs into experimental colonies so great was the fear of the disease that the late Dr. Phillips most emphatically warned him against such a foolish procedure. However, he proceeded with the studies at the next Missouri Annual Beekeeping Short Course, which was addressed by both the late C. P. Dadant and Frank C. Pellett, amazement bordering on pandemonium reigned when the results of the experiment were announced. Actually, the colony cleaned up the "fouled up" comb and reared normal healthy brood in it for the next two seasons but after the old presumably disease-resistant queen had been superseded, foulbrood began to show up in the colony.

From 1916 on through the years including those of formaldehyde and chlorine treatment of combs, our interest and study of various possible controls continued. While we were never panicky about the foulbrood menace, we did feel that in Missouri at least, it and bee pasture were the two problems we must solve if we were to keep bees on our farms for

pollination and honey production. It was no idle whim or sudden fancy on our part therefore, when in 1942 the writer and his former Experiment Station colleague, L. F. Childers, decided to try out the new "wonder drugs" as a possible control. They were saving the lives of thousands in the Armed Services, as well as of civilians, and medical men assured us there was no reason why one of the sulfa drugs would not work equally well against this disease of bees.

The results of our studies were first announced in 1944 and our more recent findings and recommendations are given in Missouri Agricultural Experiment Station Circular 341 a copy of which is available to anyone asking for it. The ever increasing use of the sulfathiazole treatment in the last few years has had much to do with the reduced losses from American foulbrood and the almost complete absence of fear of the disease today by all real beekeepers and most officials responsible for the control of bee diseases. The treatment is so simple and inexpensive—two to four cents per colony a year—and so easy to apply that in time it is certain to become a regular part of apiary management in all properly managed apiaries. When that occurs American foulbrood as a menace to bees will be relegated to the back seat the same as hog cholera by the preventive serum treatment.

But what is the sulfathiazole treatment for American foulbrood as we now recommend it? First of all we urge all beekeepers to use it on all their colonies as a prevention or fortification against American foulbrood whether they have or have never had a case of the disease in their apiary. For this purpose our experiments during the last ten years show that half a gram of sulfathiazole given each spring to every colo-

ny in the apiary before supers are put on and repeated in the fall after the supers and honey crop are removed, will give complete protection against the disease. But we insist that the treatment be repeated each year as a regular apiary practice preferably along with spring and fall feeding where that is practiced. To feed it, it may be added to sugar sirup, using half a gram of sulfathiazole to a gallon, or it can be fed in pollen substitute or perhaps simpler still mixed with powdered sugar and sifted in between the brood combs. Plan to give each colony the equivalent of one gram of the drug each year however it is fed to them.

It should go into their brood stores to be used by the nurse bees in feeding the brood or young bee grubs during the few days they are susceptible to the attack of the disease. Preventive control obviously is better than when used as a control after foulbrood shows up. As a result we urge all state and federal bee disease control officials to get behind the treatment and require its use as a prevention of the disease.

We are not only prepared to guarantee the treatment as one hundred per cent effective as fortification against foulbrood, but we are prepared to go farther and recommend its use as an actual cure where the disease is found beginning to show up in colonies that have not been properly treated and fortified against the disease. In such cases the 1,000 colony commercial beekeeper will usually prefer to burn the occasional case found rather than treat. With this procedure we will also agree. But we most emphatically urge that he follow up the burning with the treating of every colony in the yard with sulfathiazole. If he fails to do so he is sure to have more colonies later showing disease. When one burns he destroys only the disease

and spores in the burned colony. The use of the treatment after burning will prevent the disease spores lurking about the yard and, already in other colonies, from having a chance to set up infection. The sulfa drug given to the young grubs with their brood acts on and inhibits the killing action of the vegetative stage of this spore-bearing germ but will not necessarily kill the resistant spores. However, these spores are harmless until they germinate into the killing vegetative stage and at that point the sulfathiazole takes over to prevent the disease. We shall never be able to fully control this disease by burning or any other method of destroying merely the visible evidence of the disease in the burned colonies. We must get every beekeeper to fortify every colony year after year against those millions of lurking spores which may later germinate and at present the feeding of sulfathiazole is the best protection known.

We no longer recommend the treatment where colonies are already in advanced stages of the disease. It takes too much time and effort on the part of the bees to clean out badly "fouled up" combs. They can do so but they are too valuable as workers in the field gathering honey and spreading pollen to waste their time on house cleaning. Besides the beekeeper can house clean so much faster and cheaper by melting down

such combs and sterilizing the frames and hives, and giving the colony a clean hive with drawn combs showing no visible evidence of disease or frames with full sheets of comb foundation. But here again, the colony and the yard will certainly have a supply of disease spores so in such cases continue to feed the affected colony sulfathiazole for forty to sixty days to protect the first two or preferably three new cycles of worker brood. Also be sure the rest of the colonies all have a supply of the drug.

Some few complain that the disease reappears later in the summer after treatment. When this occurs the colony was not fully treated and did not have an effectual supply of the drug in its food stores. Properly treated so as to enable them to completely clean out combs and to have a safe supply of the drug in their stores, a colony will not again come down with the disease the same season or in following years if the treatment is continued. We have some of our original combs cleaned in 1944 and every year since, colonies, kept fortified against reinfection, have continued to use these same combs for rearing normal healthy brood.

Some fear that strains of *Bacillus* larvae may develop resistance. In the laboratory I am told strains have been hardened or made resistant to

sulfathiazole by culturing and subjecting them first to sub-lethal doses or concentrations of the drug. In nature out in bee yards, however, no real evidence of actual resistance to the sulfathiazole has been reported to the writer. If such strains should show up the beekeeper can greatly increase the dosage of sulfathiazole without harming the bees or he can shift to either sulfaguanidine or sulfadiazine, or even perhaps to the antibiotic terramycin which Moffett, in his studies on European foulbrood, has found also effective in controlling American foulbrood.

The nation wide use of the sulfathiazole treatment during the last few years has proven that, properly used, it is fully effective in preventing American foulbrood from attacking any colony not previously affected. Furthermore, if used on colonies even in the early stages of the disease or on "shook" colonies, until completely rid of all evidence of the disease, the treatment will actually "cure" and fortify such colonies from later attack. We need only consider what vaccines, sulfa drugs and antibiotics are doing to control and fortify man against his many ills to realize what the sulfathiazole treatment will do for the bee industry if all beekeepers will simply use it in their regular spring and fall apiary management.

Population and Ranging . . .

The heavier the population of the colony the farther afield it may go in search of nectar sources.

This observation comes from Raymond Presnell, Shulls Mills, North Carolina. Presnell is a mountain beekeeper with 162 colonies in one place. Each set of three hives in two long rows on Presnell's home place is painted in red, blue, and white. Then again red, blue, and white as a means of identification for flying bees. Never saw this before.

Emil W. Gutekunst Passes

New York state lost one of her most outstanding and beloved beekeepers with the passing of Emil W. Gutekunst, who died August 24, 1953 at his home in Colden at the age of 70. Mr. Gutekunst was widely known for the strain of bees he developed and the many thousands of queens that he sold to beekeepers in the U. S. and other countries.

He was a close observer and selected his own breeders from colonies

in his own yards for gentleness, good wintering and production. He also operated a successful home honey market.

Mr. Gutekunst was born and lived all his life in the house in which he died. Surviving him are his wife, Bertha C. Radel and two sons: Glen, who lives on the homestead with his wife and three daughters, and Raymond of Pavillion, N. Y. who has one daughter. Ray has been a New York state inspector for many years.

Emil W. Gutekunst will be missed by the industry and his many friends everywhere.

John N. DeMuth

Tennessee Label . . .

The Tennessee State Association is developing a label for honey jars and containers which can only be obtained by members of the State Association whose honey meets the requirements of the Association. This in turn increases the membership in the Association, strengthens the industry within the state and gives confidence to the buying public.

Pollination and Legislators

The widespread interest in agriculture in the need for honey bees for pollination has brought with it great interest on the part of the general farming community in the beekeeper's problem. This in turn has its effect on our legislators who will listen to the more powerful story that is back of pollination where they might not listen to the smaller story of any need which concerns only the production of honey.

Tennessee Registration . . .

Tennessee has a registration law. Beekeepers are required to register their bees on proper forms. There is no charge. They are registered by location and the registration is permanent unless the location is changed. This enables the inspection service to function, and also the extension service in the fostering of local associations and otherwise binding the beekeepers of the state into a profitable organization for their own interest.



— by —

Dr. H. Katznelson, left, and Dr. C. A. Jamieson, right, of the Bacteriology Division, Science Service, and Apiculture Division, Central Experimental Farms Service, respectively, Department of Agriculture, Ottawa, Canada.

Recent Developments in the Control of American Foulbrood and Nosema with Antibiotics

MAN is waging war continuously on disease-producing organisms which attack him and the plants and animals with which he has become associated. With the start of the second World War, there began an unusually active search for new therapeutic agents which resulted in the development of such 'wonder drugs' as penicillin and the discovery of others such as streptomycin, aureomycin, chloromycetin and terramycin, to name but a few. Thus a new field of investigation was opened to research men, the field of antibiotics, with the ultimate goal of controlling every type of disease-producing agent from virus to protozoan.

It was therefore quite natural for enterprising practical apiculturists and their scientifically trained counterparts in every part of the world to become interested in such drugs for controlling diseases of the honey bee. With this thought in mind, L. Haseman and L. F. Childers of Missouri commenced their fruitful experiments with sulfa drugs and American foulbrood (AFB) which culminated in their well-known Bulletin 482, in 1944. It is now generally accepted that a variety of these drugs such as sulfathiazole, sulfaguanidine and sulfadiazine, when

used carefully, will reduce significantly the incidence of AFB in an apiary.

Attempts to use antibiotics such as penicillin and streptomycin to control AFB were begun shortly after Haseman and Childers' sulfa experiments but without any striking measure of success. Actually Haseman himself in 1948 commented that these substances might be used successfully but involved too much trouble. Considerable work on these compounds and others more recently discovered, has been done at the Central Experimental Farm at Ottawa during the past few years in regard to the treatment of AFB and Nosema and will be dealt with briefly in the following pages.

Control of American Foulbrood

Each of the antibiotics used was first tested in the laboratory against *Bacillus larvae*, the organism which causes AFB. The most potent of these, inhibiting the bacteria at dilutions of 1:100,000 or less, were then tried out in the apiary. In the experiments conducted at the Central Experimental Farm at Ottawa the usual procedure involved feeding the antibiotics in 1:1 sugar-water sirup heavily infected with spores of AFB (about one billion per gallon). One gallon of infected

sirup was fed per colony after addition of the antibiotic, which was generally tested at the rate of 0.25 to 0.5 grams per gallon (this is equal to approximately 1:113 to 1:56 of an ounce). The experiments were begun in the spring with package bees installed on empty combs. Colonies were examined thoroughly at frequent intervals throughout the season for evidence of infection. Other workers have indicated a preference for spraying of antibiotics in sugar sirup or water. This method has also been successful in our hands but has not been used extensively in our experiments. The results of work carried out during the past few years with selected antibiotics are summarized in the accompanying table.

It is evident that the antibiotics varied considerably in their inhibition of *B. larvae* which ranged from a dilution of 1:300,000 for neomycin to 1:100,000,000 for aureomycin, yet neither completely controlled AFB in the apiary. Only terramycin and an impure concentrate of this compound, terracon, were completely effective in this connection. Penicillin, streptomycin, subtilin, chloromycetin and the recently discovered magnamycin were ineffective in our hands at least. The observation that

TABLE
Inhibition of *Bacillus larvae*, agent of American Foulbrood
in the Laboratory and in the Apiary by Various Antibiotics
Inhibition of *Bacillus larvae* (AFB)

Antibiotic	Laboratory tests*	Apiary tests**		
		Examination of colonies	(days)	
		16	32	78
Penicillin	1:5,000,000	x	xx	xxx
Streptomycin	1:600,000	x	xx	xxx
Subtilin	1:600,000	xx	xxx	xxx
Chloromycetin	1:600,000	xx	xxx	xxx
Neomycin	1:300,000	—	—	x
Aureomycin	1:100,000,000	—	x	x
Magnamycin	—	x	xx	xxx
Terramycin	1:20,000,000	—	—	—
Terracon	—	—	—	—
Control	—	xxx	xxx	xxx

*Dilution of antibiotic causing complete inhibition of growth of *Bacillus larvae*.

**— = no disease; x = a few infected cells; xx = appreciable number of infected cells; xxx = many infected cells.

terramycin was so promising a treatment for AFB was of particular significance since we had shown in experiments on European foulbrood in 1952 that this compound was effective in controlling this disease also. Thus a dual-purpose antibiotic seems to have been brought to light.

Control of Nosema Disease

Many attempts have been made to control this widespread, infectious, protozoan disease of the adult honey bee. Sulfa drugs, arsenicals, anti-protozoan agents and many antibiotics have all been tried in vain. Yet the importance of this disease warrants continued effort to find an agent which will hold it in check. Most of the antibiotics which have been shown to have some antiprotozoan effect, such as aureomycin, chloromycetin, terramycin, thiolutin, magnamycin and fumagillin have been tested in our laboratories but only the last of these appears to show distinct promise. The tests so far have been carried out by feeding these compounds in 60% sugar sirup (in 2-oz. bottles) containing about 30 million cysts of *Nosema* per bottle, to bees in wire cages. Each cage contained 100 adult bees. Dead bees were removed daily and examined for the presence of cysts of the parasite in the epithelial cells of the ventriculus. In brief, it was found that fumagillin in amounts of 1 mg. per 30 ml. (a dilution of 1:30,000) reduced infection from 76% to 2%. Thus another antibiotic may be available for controlling another disease of honey bees. Further tests on the toxicity of this substance to bees as well as extensive trials with infected colonies are being carried out and the results should be available in the not too distant future.

Conclusions

The search for newer and better antibiotics is still going on and it is to be expected that others will be discovered which are also effective against AFB, EFB, *Nosema* and even sacbrood. However, a word of caution is required. It is recognized that none of the compounds, including the sulfa drugs, shown to be effective in controlling AFB, has any influence whatsoever on the spores of this organism, nor on the cysts of *Nosema*. Consequently those who are using or plan to use sulfa drugs or antibiotics to control disease in their apiaries must do so with this critical fact in mind. Every care should be exercised to prevent spread of spores to other hives by contaminated tools, extractors, hive equipment, and especially by the beekeeper himself. The drugs should be used under proper supervision preferably by inspectors or their deputies and suspected colonies removed from the apiary proper. The beekeeper should not be lulled into a feeling of false security because he has at hand a means of control. There are too many reports of recurrences of disease especially where the treatment has not been applied properly or has been applied at the wrong time (during the honeyflow). However, in areas where foulbrood abounds, experience has shown that these compounds have been quite effective in preventing the disease from spreading in overwintered as well as package bees. They have also been used successfully in feeding infected honey back to colonies. It is the goal of the research worker to discover such materials but it is for the beekeeper to apply them with care and intelligence. In this way it is hoped that control of the diseases of the honey bee ultimately will be achieved. Ottawa, Canada

Nighttime . . .

Nighttime of all times is often the best time (excuse us) for a bee meeting. Knox County, Knoxville, Tennessee recently had a meeting at night at W. A. Snyder's at Fountain City. Snyder has a place up on a hillside overlooking the beautiful flower gardens he has established. Mrs. Snyder had 35 pounds of hamburger for a hamburger fry with iced drinks, and the poor lady sweat on what was otherwise a cool evening to keep the hungry filled up. But she certainly did a bang-up job of it. Congratulations, Mrs. Snyder.

And how the beekeepers turn out for these picnic meetings! There were 175 beekeepers at this meeting. Can you beat that?

Almost Fatal Bee Sting . . .

E. C. Hawley, Iola, Kansas, tells of the almost fatal stinging of Mrs. Edna Cooper, at his honey plant in Iola. The sting was on the tip of a finger. She was rushed by car six blocks to Dr. Smouse. Mrs. Cooper felt that she could not survive. Her sight was dimmed and she collapsed in the Doctor's office. A shot of adrenalin was administered and breathing restored by chest pressure. Finally a Pulmotor was rushed in and artificial respiration was given, supported by oxygen. She was then removed to the Allen County Hospital where she remained unconscious for five hours. Slowly she improved and when Mr. Hawley reported (Sept. 13) she was able to care for herself and slowly gaining.

Bee Beard . . .

Presnell at a meeting near Boone, North Carolina demonstrated the making of a bee beard. He ties the queen of a colony in a cage around his neck, shakes the bees off a comb into a pasteboard box and then pours the bees over his naked torso. The bees climb up to cluster around the queen and the extra ones are shaken off and there you have a bee beard. Not always without stings, as Presnell will tell you.

Association Membership . . .

Dr. Crane of England reports that 40 to 50 per cent of British beekeepers belong to associations. In Switzerland 80 per cent are members, and in Holland 98 per cent. Surely we could do more if the same percentages applied in Canada and U. S. A.



American Foulbrood- Down, But Not Out

by Joseph O. Moffett

Assistant Entomologist, Colorado A & M College,
Fort Collins, Colorado

AERICAN foulbrood has probably been causing serious losses to honey-bee colonies long before man discovered the goodness of honey and the many uses of beeswax. The earliest studies of bees revealed a disease which was probably American foulbrood. The keeping of bees commercially intensified the problem, and resulted in several practices which favored the spread of the disease. Eventually it was found that by exercising extreme caution, which required the burning or melting of diseased combs, and the killing or transferring of the bees, AFB could be re-

duced to manageable proportions. Yet in many areas there was still a substantial loss due to AFB every year.

Sulfathiazole discovered. Dr. Leonard Haseman of Missouri found that sulfathiazole and related drugs would cure colonies badly diseased with American foulbrood during the early 1940's. Beekeepers greeted the news enthusiastically. Colorado beekeepers began using sulfathiazole soon after Dr. Haseman's results were announced. Soon, most of the beekeepers of the state were using the drug successfully.

Preventive feeding most successful. The addition of the sodium sulfathiazole powder to sirup normally fed colonies in the spring has given good results in Colorado. One commercial honey company operating 2,000 colonies went several years without having a single case of AFB by using sulfa in their spring feeding

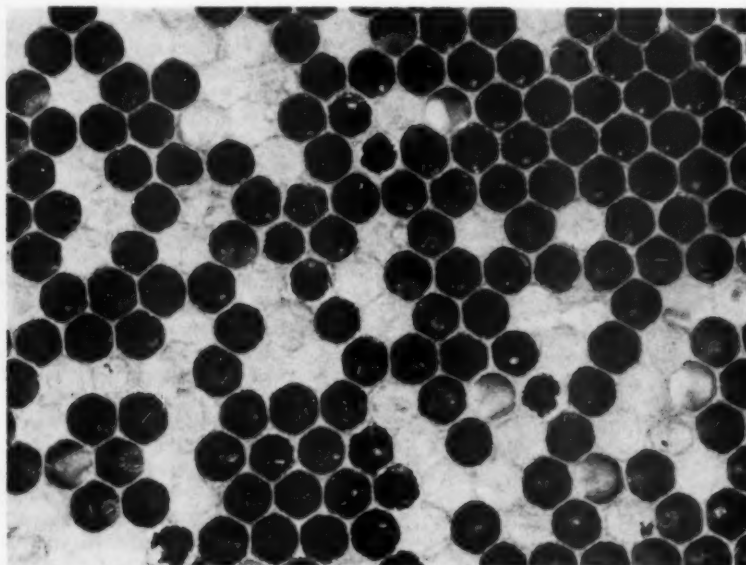
program. Some beekeepers use sulfa as a preventive, then gas every colony which shows American foulbrood.

Curing diseased colonies. Sulfathiazole will also cure AFB-diseased colonies. However, it is the attempt to cure these colonies that has caused many of the problems associated with the use of sulfa. Colonies would sometimes clean up one year only to show the disease the next year. Some colonies will only partially clean up, particularly if badly infected and if not fed sulfathiazole over a considerable period of time.

AFB still deserves respect. The success of sulfa in preventing the disease and in cleaning up AFB-diseased colonies has caused some beekeepers to become careless in handling diseased colonies. A colony or more of AFB can be found in too large a number of apiaries belonging



Cyanogas all weak, diseased colonies. They may die and infect many others.



Brood comb showing the tongue line and scales of AFB. Beekeepers should learn to distinguish bee diseases.

to commercial beekeepers. Some of the factors which should still be watched in keeping down AFB are given below:

Wintering diseased colonies. The wintering of diseased hives in normal apiaries is a very questionable practice. If the colony dies out, many colonies can contact AFB by robbing out the dead hive. Colonies showing disease in the fall should preferably be killed. At the very least they should be moved to a diseased yard where they can be watched closely.

Dead colonies should be removed. Colonies that die out in the winter should be taken to the honey house when discovered. A walk through the apiary on a warm winter day when the bees are flying will often reveal weak or dead colonies. Any colonies not flying on a nice day should be examined. The combs should be inspected carefully for

signs of AFB. If AFB scales are present, the combs should be taken to the honey house and melted.

Know differences between diseases. Every beekeeper should learn to distinguish between AFB, EFB, and sacbrood. Good descriptions of these diseases are given in most bee books. If there is any doubt as to the disease after studying these descriptions, a sample of the diseased comb should be sent to the Bee Culture Laboratory, Bureau of Entomology and Plant Quarantine, Beltsville Research Center, Beltsville, Maryland, for positive identification.

Remove weak colonies. Weak diseased colonies should be killed with calcium cyanide and removed from the apiary. This is better than running the risk of the colonies dying out and spreading the disease. The colony should be gassed 30 minutes

before being removed from the apiary. This gives the field bees time to return to the colony.

Move diseased colonies close to home. All diseased colonies should be placed in a yard close to the beekeeper's home so he can watch them closely. He can examine them frequently and prevent them from becoming weak and being robbed out. They can also be treated more frequently if they are closer to home.

Mark hives. All diseased colonies should be clearly marked. The supers used on them should be kept separate. Treated colonies will respond to the treatment much quicker if all the honey is removed from the hive before the treatment starts.

The wise use of sulfathiazole has knocked AFB to the canvas. Yet it can and will get off the floor and KO the careless beekeeper.



Terramycin Controls American Foulbrood

by Herbert Studier*

Financial losses were terrific. Our own loss from American foulbrood in 1944, the year we started beekeeping on a commercial scale, was so great it threatened to put us out of business almost before we got a decent start.

In 1945, we began using sulfathiazole which proved to be a godsend. In fact, since 1945, we have built practically our entire outfit now consisting of 2000 colonies with secondhand equipment—some heavily diseased and some quite clean—each time thoroughly spraying every comb with sulfa solution followed up by inspection of the colonies themselves and further treatment of the active cases.

For the first six full years, we used sulfa on all active disease with almost complete success. From the start there were colonies which were slow to clean up, more a matter of housekeeping on the part of certain bees, we felt. We were always able to clean them up with continued treatment. Despite continued success, we never lost sight of the fact that resistance to sulfa might eventually develop.

By the spring of 1952, resistance did develop to the point where there was no improvement whatever in some colonies under frequent sulfathiazole treatment. With one particular group of American foulbrood colonies, which I had taken over from a large bee outfit nearby to clean up on shares, resistance reached a very high point. Some of this disease developed in laboratory cultures in concentrations of sulfa up to eight times that required to stop development of ordinary foulbrood. For all practical purposes this disease was immune to sulfa treatment. We had finally reached the point where we were either going to have to resort once again to burning or rendering out a part of our diseased combs.

However, thanks to the Charles Pfizer & Co., Inc., we obtained a free supply of terramycin in the late summer of 1952, and used the material with complete success on all American foulbrood for the remainder of the active bee season. Since the honeyflow was still on, this material was used in a water solution which was sprayed on all the brood combs

American foulbrood is now, and always has been, our worst disease problem. Were it not for American foulbrood, beekeeping would be simple—much more like the impression many people have of our work—"Just set the bees out and let them make honey."

American foulbrood is inevitable, is everywhere and is certain to ruin the beekeeper who is not on his toes to inspect and find disease, followed immediately by the proper treatment. Proper treatment in years past was burning the bees, combs and honey and scorching the hive bodies, bottoms and covers with fire.

individually with a 4-gallon pressure sprayer. The super combs were sprayed only from the bottom with the super standing on end and directing the spray between the combs. Several colonies cleaned up completely within 14 days with only one spraying, after having been under treatment with sulfa the whole summer. Other mild cases cleaned up in ten days and even less. It was soon apparent that terramycin was more quickly effective than sulfa had ever been.

On January 19, 1953, we began to use a product known as "Terramycin Poultry Formula" on some of this highly sulfa-resistant foulbrood. This was in Georgia. Queens were just beginning to lay. There was no sealed brood in any of the colonies. Some of the colonies were in rather poor shape with the old brood area loaded with scales of American foulbrood. All colonies were in singles and had to start their small brood nests completely surrounded with disease. There was no honeyflow and the colonies were very short of feed so conditions were ideal for treatment. A combination of both medicated sirup and spray was applied to the colonies at regular weekly intervals. We used one ounce of Terramycin Poultry Formula to 8 gallons of either water spray solution or feed in this early experiment. Each colony was given approximately $\frac{1}{2}$ gallon of medicated sugar sirup sprinkled directly into the empty combs on each visit. In addition the actual brood area was sprayed with the medicated water solution. All of these colonies raised 100% clean active brood for two months—some of the brood nests still being surrounded entirely by scales of American foulbrood. At this time, booster bees were added to all 25 colonies after which clean-up was much more rapid. In fact, in about 10 days all scales had been removed. These colonies have remained clean to date; are now producing honey for us.

Spraying of the brood should never be attempted during cold weather such as early spring in the North. Feeding would be preferable at such times. During a flow the only satisfactory way to clean up a colony is to use the drug in a spray applied to the combs, the very best results being obtained if each comb is removed individually, the bees shaken off, and both faces of the combs thoroughly sprayed.

In another series of experiments

with Terramycin Poultry Formula, we fed a number of our yards preventive feedings in the fall of 1952 and also this spring. At the completion of one round of inspection by July 1, we found that the incidence of American foulbrood was five times greater in control yards compared to those given the preventive feedings.

Preventive feeding was accomplished by simply pouring about 1 quart of medicated sugar sirup or dilute honey directly over the frames. Two such feedings were given in the fall about one week apart. Two more such feedings were given at about 10-day intervals this spring starting around April 25.

Preventive feedings give wonderful results in pick-up areas or under any conditions where the disease is being introduced from outside sources which includes the addition of one's own supers which might contain spores of the disease. On the other hand, if there is considerable infection within the colonies themselves preventive feeding would give the same good results but might in some cases mask the disease. Preventive feeding alone will never do the job, but must be followed up by constant inspection.

In all of our experiments using from $\frac{1}{2}$ to one ounce of Terramycin Poultry Formula to 4 gallons of spray, we could notice no toxic effect whatever on either adult bees or brood.

Our latest experience with Terramycin Poultry Formula was with an outbreak of 30 colonies in a yard of 50. The inspector found some rotten combs robbed out just $\frac{1}{2}$ mile from this yard. This was on June 16. On June 17 the entire yard of 50 colonies was sprayed figuring that all the colonies might have been exposed. All colonies were again sprayed on June 30 at which time I already noted some cleaned-up colonies. I did not check the colonies very carefully at this time. On July 13 the entire yard was thoroughly inspected and not a single cell of American foulbrood could be found! A third spraying was given at this time. We feel these colonies will stay clean, since treatment was started at a time when none of the colonies had sealed honey. Besides these 30 colonies we have already succeeded in cleaning up another 30 colonies this summer, some of them bad ones.

There are limitations to the use

of drugs in the treatment of American foulbrood. Unless the sealed honey in the diseased colony is taken into consideration, the colony may clean up for a time, only to become reinfected later when it becomes necessary for them to draw on this contaminated honey. In our own control program, if the disease is found early in the spring and the colony has only a small amount of honey, this is uncapped with the hive tool at the time of treatment and such colonies clean up and stay clean. On the other hand, if the colony has too much honey for it to safely "work over" in this way, we mark such colonies with lumber crayon at the time of treatment. In the fall all such colonies, whether cleaned up or not, are killed off and every cell of honey is extracted. The empty combs are sprayed before returning to the bees the next spring. This plan has worked very well for us.

Any disease found late in the fall or any colony under treatment still showing disease should be killed off and the honey extracted. Any combs containing bad infections of disease or dried down scales should be rendered. They can be cleaned up, but it isn't worth the effort and time on the part of either the bees or the beekeeper. We used to save everything, more to satisfy ourselves that they could be cleaned up than anything else. We no longer have the time to give to these old "scaley" combs, since we have expanded to 2,000 colonies.

There is also the possibility that resistance to terramycin may eventually develop. It will probably take several years as in the case of sulfa. We are proceeding with Terramycin Poultry Formula 25 exclusively for the present. If, and when, resistance develops to this new drug, we believe that sulfa could again be used on those cases which might fail to respond to terramycin, just as we have already done with terramycin on sulfa-resistant American foulbrood.

For the conscientious beekeeper who is willing to go to the extra work of faithfully inspecting his bees for disease followed up by careful treatment; and with the continuing research now being done to find even more drugs which will do the job, the future for beekeepers looks very bright.

* Shell Rock Honey Farms, Glenville, Minnesota.



WHEN sulfathiazole was first strongly recommended for the control of American foulbrood, we started to use it in our own apiaries. We had been using what we called "the escape method" for strong colonies, a method that I invented whereby a wire cone or cones were tacked over the entrance and sometimes the upper escape holes to allow the bees to leave the infected hives but not re-enter. At first I used inch strips of foundation in clean frames, with clean hives for the escaped bees to enter, using a caged, young queen of resistant qualities to head the new unit. Later on we used full sheets of foundation with excellent results. This method had an advantage over the shake method in that the bees were not disturbed and induced to fill up with honey from the old hive, and also no combs were exposed to robber bees or honey spilled on the ground.

Several years ago we had assembled thirteen or fourteen colonies that had American foulbrood following the orchard rental season in a separate yard. This apiary was a mile or more from any other apiary and the infected bees had been brought there for treatment or disposal. The honeyflow was very poor. In fact, in this particular apiary the bees were only maintaining themselves but were quite strong. This appeared to me to be a fine opportunity to try out a new method. Each of these colonies had supers of empty comb, some fully drawn, and others, sheets of foundation. I decided to shake the whole apiary, using empty comb (clean of AFB as far as I could judge). This was done

The Use of Sulfa in the Control of American Foulbrood

by R. E. Newell

as rapidly as possible, first filling the drawn comb with a sugar, sulfathiazole solution as recommended, and sprinkling the bees as well. The queens in these colonies were young for the most part, and were shaken into the hives with the bees.

All of the combs containing bees were shaken, many of them containing clean brood as far as I could see, but to be safe, nothing was saved. When the job was done I had twelve hives, some single, and others double story, containing no brood or combs of honey. Each hive however, was like a newly hived swarm, except that they were on comb that had been exposed to contamination, and tops, bodies, and bottom boards that had been used to house diseased bees.

This work had been done about the middle of August, and each of the colonies were given a weekly feeding of five pounds of sulfathiazole sugar solution until late October. The late August and September honeyflows had been fair and this enabled the colonies to build up some surplus for winter. The following March sulfathiazole feeding was again continued until about the first of May.

Inspection was made of these colonies at the end of the feeding period and all colonies were apparently clean, May first. Subsequent examinations showed they were clean, and the bees built up into strong colonies for wintering without any feeding.

The next spring, my son and I examined these colonies in early April and found three that were infected with AFB. We shook the bees from the infected colonies into clean hives containing full sheets of foundation and fed sulfathiazole sugar solution, as much as they would take to draw out the foundation and build up, perhaps two gal-

lons each. These colonies remained clean, and in an excellent honey year, they made a good surplus.

In the past we have found that bees will build up healthy brood in infected comb, by sulfa feeding. Some will remain clean, if the infection is in its early stages, but others will later show infection if sulfa is discontinued. Apparently sulfathiazole has only a retarding effect on the bacteria, and once feeding is discontinued, re-infection may occur when the bees take honey from comb containing no sulfa.

We would not feel safe in using the method described, using comb taken from infected colonies or infected hive parts. There is too much chance of reinfection after sulfa feeding is discontinued. We do however, believe the bees from very strong colonies may be saved if they are carefully shaken into clean equipment, or escaped from infected hives by the wire cone escape or carbolic acid. Such colonies must be fed with sulfathiazole solution however, until all honey they may carry into the hive in their honey sacks has been used up, which should be a period of two or three weeks.

Sulfathiazole solution is a valuable aid to the beekeeper, and should not be cast aside. It is used successfully in the control of many diseases. Beekeepers often get an infection from strange swarms of bees taken from the neighborhood. This can be prevented by feeding such swarms with sulfathiazole. Colonies used in pollination of fruit may be exposed to contamination from bees located near the orchards; feeding sulfa to such colonies on their return, may save them from infection. We believe sulfathiazole should be used to prevent infection rather than as a cure for colonies already heavily infected. Heavy feeding of sulfathiazole to colonies may cause the bees

to store it in the supers. All feeding of sulfa should be discontinued at the beginning of a honeyflow. Generally bees will not take sirup when fresh nectar comes in sufficient quantity to be stored.

A beekeeper with thousands of dollars in equipment and bees cannot afford to be careless. Therefore, it pays to destroy infected colonies on sight by killing the bees and burning the frames and combs or to save the bees by using sulfa. We clean infected tops, bottoms, and bodies by scraping them clean with a scraper or sharp hive tool and

burning them out with a blowtorch. They are then brushed with a wire brush to remove all charred surfaces, and painted with two coats of paint inside and out.

Clean wax on combs from supers that may be taken from diseased colonies may be saved for rendering. The process of making new comb foundation apparently kills all disease germs.

Some strains of bees are more susceptible to disease than others. A resistant strain proves a valuable aid in preventing the spread of AFB.

Combined with sulfathiazole and clean equipment, a beekeeper can keep reasonably clean apiaries.

A beekeeper must examine each colony before putting on supers, each time additional supers are added, and again when removing the crop, to make sure that it is not infected with AFB. Extracting combs of honey from infected colonies in the honey extractor along with clean combs is one of the most rapid ways to go out of the bee business, fire and flood excepted.

Massachusetts



Chemical Control of American Foulbrood and Nosema Diseases

by Dr. Thomas A. Gochmayer

Entomology and Economic Zoology
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CONSIDERABLE interest has developed in Minnesota over the possible use of terramycin formulations for the treatment or control of AFB. Minnesota beekeepers who have used terramycin extensively for European foulbrood disease control have reported that feeding or sprays of approximately one-quarter gram of actual terramycin per gallon of syrup have resulted in rapid improvement of occasional AFB-infected colonies found among their EFB outbreaks. Another beekeeper reported apparent cleanup of 25 out of 28 colonies after feeding 1 gram terramycin as Terracon 180 in 3 gallons of syrup. Four of 6 colonies treated with one-half gram terramycin as Poultry Formula 25 in 2 gallons syrup recovered. All of 12 colonies treated with a quarter gram of terramycin as PF 25 in 2 gallons of syrup recovered.

This report is obviously incomplete, as there is no mention of the

results in untreated controls. Although spontaneous recoveries from AFB infections are rare, the feeding of sugar syrup has been reported beneficial on some occasions. Needless to say, these colonies will have to be watched for recurrence during this fall and next spring. When tests of pure terramycin were conducted at the University Farm, it was found that infections brought about by spraying spore suspensions of *Bacillus larvae*, the cause of AFB, over the brood combs could be prevented by simultaneous sprays of 0.01 per cent terramycin, 0.01 per cent chloramphenicol or 0.1 per cent sprays of sulfonamides.

Infections following spray inoculations were also prevented by pouring about a fifth of a pint of treated syrup containing either 0.01 per cent terramycin, chloramphenicol, or 4,4' diamino diphenyl sulfone digalactoside over the top of the brood nest at weekly intervals for 3 weeks.

One of the problems involved in setting up tests such as these is the amount of inoculum necessary to bring about an infection in untreated

colonies. In both tests just mentioned, attempts were made to inoculate the colonies by feeding about 500 million spores in a gallon of syrup. These attempts failed, and the spray inoculum was then used.

During this past summer, test colonies were made up of commercial packages headed by commercially produced hybrid queens. Following completion of some nosema tests, the colonies were inoculated by inserting full frames, containing foulbrood scales, in the brood nest. Heavy foulbrood infections developed in the inserted combs and spread to the adjacent combs. These colonies were then treated by administration of approximately an ounce of Poultry Formula 25 with the aid of a new garden dust gun. Two treatments were applied at weekly intervals, without very satisfactory results. Two of 7 infected colonies were cleared of visible infection, while none of 4 infected colonies not treated showed any signs of improvement. Two facts are obtained from these results, namely, that hybrid stock did not insure protection

against infection with AFB, and that the fully developed infections did not clear readily under treatment with dry terramycin applications.

These observations do not necessarily contradict the results of others who found, for example, that pure terramycin dusted over the brood nest brought recovery, nor do they contradict the results of the commercial beekeepers reported above. They do indicate that more needs to be done concerning dosages and the method of application of this antibiotic, for the proper control of AFB.

The need for developing chemical agents other than sulfathiazole for AFB control is emphasized by the current increase in EFB outbreaks, against which the sulfonamides are not useful and perhaps also by the observations of Mr. Studier, which indicate that in some instances, at least, terramycin or other chemicals are more effective in AFB control than is sulfathiazole.

It should not be said, however, that sulfathiazole is out of date as a preventive for AFB. Where the disease picture is uncomplicated by

EFB, and where sulfa gives satisfactory performance, there is no need for substituting other agents. Sulfa is cheaper and more stable than any of the present antibiotics. It is also potentially less toxic to the bees.

Considerable interest has developed concerning the use of the new antibiotic, fumagillin, in the control of nosema disease of honey bees. This antibiotic was originally found to be effective in control of amebic dysentery in humans, and was therefore tested for nosema disease. Experimentally developed infections in a University Farm experimental apiary last year were effectively controlled by simultaneous feeding of 0.13 gram fumagillin per gallon. The inoculum used was 2 million nosema spores per gallon. After 32 days, the two untreated colonies contained approximately 50 per cent infected bees, while the two treated colonies were free of infected bees. After 53 days, the untreated colonies contained 9 and 15 per cent infected bees respectively, while the treated colonies were still free. During this spring, the effect of fumagillin treat-

ment on naturally occurring infection was tested in the same yard. In the treated group, 6 of 13 colonies had some degree of infection at installation, and only 1 of 13 appeared infected after 3 weeks. In the untreated group, 9 of 14 colonies were lightly infected at hiving, but 13 of 14 were infected at the end of the same period. Each treated colony in this case received 0.19 gram fumagillin in a gallon of syrup. Untreated colonies received plain syrup.

These results are encouraging, and it is hoped that dosage levels and practical methods of application can be worked out so that packages and overwintered colonies can be protected in areas where nosema disease is commonly a problem. There are many problems still unsolved in chemical control of bee diseases. A disinfectant (not necessarily an antibiotic) that could be introduced into a living colony of bees to kill the spores of AFB or nosema and still not harm the bees is an ideal at which to aim.

Paper No. 826, Miscellaneous Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

Ladder on Endgate . . .

Raymond Presnell of Shulls Mills, North Carolina, has a truck with a high endgate which lowers onto the ground and on the inside face of the endgate there is a ladder for walking up into the truck. This is a good idea and saves a lot of labor in truck loading or unloading.

A "Migratory" Beekeeper

Dr. Black of Charlotte, North Carolina, is an example of a professional enthusiast who goes in for the extraordinary. If Dr. Black finds a good source of nectar, he is liable to move his colonies to it even if he only moves ten or fifteen. He has been known to move to sweet clover sources and also to the mountains for sourwood. So Dr. Black's bees can be carried out in small numbers here or there and he gets a big kick out of the crop he gets and the fun he has from his "migratory" beekeeping.

Truck Ruling . . .

Wisconsin beekeepers are exercised over a decision by the Highway Department to make beekeepers' trucks conform to regular commercial truck licenses, rather than qualify as farm trucks taking the much cheaper farm truck license.

While there may be exceptions when the packer beekeeper uses his truck primarily for hauling and delivering his packaged honey, it certainly looks like discrimination to consider beekeepers as outside the classification as farmers.

Coronation— . . .

Few beekeepers are aware of the fact that in the Coronation of Queen Elizabeth there were 22,000 beeswax candles in use. There were other candles 18 inches long sprayed with gold and others 36 inches long. There were huge candles weighing over 20 pounds covered with the coats of arms of previous British rulers. The order for these candles was filled by Ajello Bros. of Mamaroneck, New York. It took six months to furnish the candles required in the Coronation Ceremony.

Aluminum Paint—Inside . . .

According to Leslie H. Little, State Apiarist for Tennessee, if a hive is painted with a good grade of aluminum paint made for use on wood and then painted on the outside with a white oil paint, there will be no water blisters on outside white surfaces, very little propolis on the inside and less moth damage. Might be a good idea to paint top bars with this, too.

A Record . . .

In extension work in the early days in North Carolina the beekeepers were helped immeasurably to change from box hives and log gum equipment by that indefatigable mountain beekeeper, C. L. Sams. Sams concentrated on modernizing North Carolina's beekeeping. As a world's record, Sams in one day with two helpers transferred over 100 colonies from box hives to modern hives before an audience of over 1,000 beekeepers. The modernized beekeeping of today in North Carolina (although still a 50% box hive or log gum state) is probably due to the work of C. L. Sams more than any other one individual.

Tennessee Insurance Plan

The Tennessee Association has developed an insurance plan which covers colonies of bees up to \$3 or \$4 a colony against losses from various causes. The insurance is carried by the State Association and can only be obtained by members of the Association which in turn strengthens the Association membership and gives the beekeeper a very solid return for the cost of his membership. The insurance costs 25 cents a colony. It is not being underwritten by any insurance company.

Current Reading

Conducted by
M. G. Dadant



Eucalypts the World Over

The Australian Bee Journal reports that the eucalyptus is becoming a world-known tree. Originally native of Australia, eucalypts were brought to the west coast of the United States many years ago. California eucalyptus honey is recognized in the trade as an amber honey of not too high a grade. Probably eucalypts serve best as colony builders out there.

Recently Soviet Russia is proceeding vigorously with a program of gum tree planting in the southern sections of the Soviet Union. "Halle Selassie imported and planted many millions of gums throughout his African domain before the Italian invasion, and Mussolini used the tree as his main ally in reclamation of the Pontine marshes."

Problems of the Winter Cluster . . .

The Bee Research Association at Bromley, Kent, in England has issued a 32-page bulletin on "Some Problems of the Winter Cluster" by E. B. Wedmore, based on observations by H.A.N. Dellow, covering a period of three years. Only a brief summary is possible.

"The control of ventilation is as important to the winter cluster as control of temperature."

"Still air is a good insulator."

"Bees control the temperature by changes in the diameter of the cluster and by alteration of bees in the cluster."

"The temperature of the cluster is determined by economies of food when there is no breeding; by breeding requirements with brood in the hive. Control of uniform temperature is vital with eggs and unsealed brood in the hive, a little more leeway with sealed brood."

Apparently during the period of the experiments, there were no extreme variations in temperature such as might occur when a warm balmy day in winter in Minnesota, is followed by below zero conditions.

Further efforts will increase the value of the experiments.

We assume that copies of this bulletin may be obtained by addressing the Bee Research Association as above and enclosing 50 cents.

Notes . . .

A. E. Lundie in the South African Bee Journal says that honeydew is of higher acidity than floral honey and is also high in dextrine content.

E. S. Mayne, a beekeeper in England, says that the causal agent of foulbrood is "static electricity" and that present scientists are wrong; all that is needed is to find something to check the interference of static electricity. (Article in South African Bee Journal).

The Boletín de la Compañía Administradora del Guano (Peru) in its February number has an article devoted to results of experiments with various eucalyptus trees in groves in the Sierras.

Paper No. 817 of the Minnesota Agricultural Experiment Station concerns antibiotic control of Nosema disease in commercial apiaries by Dr. Thomas A. Gochnauer. Fumagillin fed twice to the colony yielded quite encouraging results. Package feedings before shipment seemed of little value though such feedings combined with hive feedings appeared to cut down the level of infection materially.

Honey Investigations For Cooking . . .

The Department of Flour and Feed Milling Industry at Kansas State College, Manhattan, Kansas has been engaged in contract research on the role of honey in commercial baking. These contracts have been under the honey research program of the Eastern Regional Research Laboratory at Philadelphia where Dr. J. W. White, Jr., is located. Major part of the funds for research were furnished under the Research

and Marketing Act of 1946 with the American Beekeeping Federation cooperating. The following studies are reprints which may be obtained either from Kansas State College or from the Research Laboratory at Philadelphia:

Honey—Its Use in Bread Production—Smith and Johnson in American Baker, 2 pages.

The Use of Honey in Cake and Sweet Doughs—Smith and Johnson—Bakers Digest, 8 pages.

Honey Improves Fruit Cake Quality—Smith and Johnson—Bakers Digest, 4 pages.

Honey, Its Value in Use in Popular Cookies—Smith and Johnson—Bakers Digest, 4 pages.

This is a fine piece of work and should call for many reprints both on the part of bakers and beekeepers.

Large Beeswax Candles . . .

Louis Corn in "Gazette Apicole," tells of famous beeswax candles: That commemorating the death of Eva Peron in Argentine, 4 feet tall and one foot in diameter which is to burn one hour each year on the anniversary of her death. It is presumed to last for a century. Another is the one in the Mihrab of the mosque of Aya Sophici in Istanbul, Turkey, which after five centuries of burning one hour each year, still weighs four hundred pounds with a height of six feet and is supposed to last till the end of man.

Legume Crops in Georgia

Bulletins 23 and 50 of the Georgia Coastal Plains Experiment Station at Tifton deal respectively with winter and Summer Legume and Forage Crops. Of interest to readers are discussions on crotalaria, lespedeza, hairy indigo, cowpea, alyce clover, crimson clover, subterranean clover; Kenland, bur, and sweet clovers.

The lupines are also discussed. Lupine acreage is increasing rapidly in that area. A recent government report gives the forecast crop of lupine seed for 1953 in the states of Georgia, Florida and Alabama as 52 million pounds. In the West, lupines have been considered of value in nectar production. There seems to be small evidence that the lupine of the Southeast has much value to bees. But years of acclimatization and selection of varieties may give us some hope for the future. The bluebonnet of Texas belongs to the lupine family.



Harold Pellett with plant of Big Leaf Cow Parsnip.



Bees freely visit the flowers of *Vitex incisa negundo*.

From The Honey Plant Garden

by Melvin Pellett

OUR younger boy, Harold, has in early August removed from his beehives, the supers which are filled with honey. This crop amounts to 12 modified Dadant supers from his five hives (not counting the partly filled supers which were not taken off). This is a pretty good showing for this season in our locality. The main honey-flow has been of short duration this season as there has been little if any surplus after the first of July. Supers which were added in early July have hardly been touched. The heaviest flow started in late May and began to lessen after the middle of June. White Dutch clover came into bloom early, overlapping more than usual with other early flowers. While we expect that most of the honey is from white and sweet clovers, still it is enough of a golden color and of a flavor to indicate that a considerable amount of it must be from other sources. Virginia waterleaf grows thick in several acres of our grove. We have a half acre of meadow sage and

the bees work both very heavily in May. Add to this, smaller amounts of bloom from numerous kinds of early flowers, plus pollen sources from native trees to make a good location for early season build-up.

It is too soon to know yet whether Harold may eventually follow bee-keeping as a business or as a hobby. His enthusiasm for his bees has been quite constant ever since he was given his first hive when a small boy.

An attraction in the test gardens during July was the row of big leaf cow parsnip (*Heracleum mantagazianum*) in bloom. This plant is native to the Caucasus. References state it as growing to eight or nine feet tall with leaves up to three feet long and flower clusters or umbels to four feet across. *Heracleum* is sometimes planted in wild gardens for bold effects and as specimen plants. Our planting has not reached the full size as above described, but it did grow large with large deeply cut leaves and numerous large flow-

er clusters. It possibly would grow larger in more moist places as our planting is in full sun and the weather has been dry last fall and this summer.

Our start of big leaf cow parsnip was from seed sent to us from France where the plant has been reported as very attractive to bees. However, we are unable to find any honey bees on the flowers this season although at times the flowers are frequented by wild bees and wasps. Perhaps in another season or in different localities the bees would work it. The plant is a biennial.

We have enjoyed a visit from Mr. and Mrs. J. F. Denham of Arizona. Formerly of Quincy, Washington. Mr. Denham has an acre of Pellett clover (*Trifolium ambiguum*) yet growing on his place there. This was planted in 1947 from increase of plants set out in a different location a year or so earlier. Mr. Denham and I had an interesting time comparing notes on the behavior of this

very unusual clover. We have had correspondence regarding this and a letter Mr. Denham wrote me last spring well describes his experience in part as follows:

"... We never found a remedy for its failure to set seed and I have just about given up hope. . . . There are a few small patches or plants which did very well in the Washington plot but I never could determine why. They grew large thrifty leaves and fairly large stems and had an enormous root system which was almost impossible to push an irrigation shovel into but very little blossom or seed. Plants adjacent to them were more or less sickly looking but kept surviving and thickening until they formed a perfect mat. . . ."

I showed Mr. Denham our Pellett clover, some of which we planted seven years ago which is yet a solid stand and apparently in healthy condition. It grows vigorously in the spring months with very large leaves. During the warmer part of the summer months, it makes little growth and does better again with cooler weather in the fall. A single row originally, it has spread out to some twelve feet across. This is on good fertile soil but no fertilizer has been added. We had one planting on similar soil, which did very well at the start but began receding after the third or fourth year and since has been plowed up to make other use of the land. We made several plantings of up to an acre. We have also had poor success in obtaining a seed crop from this clover, although one of the early tests was a 1/10 acre plot which had a heavy set of seed.

Trifolium ambiguum (Pellett clover) first came to the American Bee Journal test gardens from a few seeds in 1941. Increase was made principally from root divisions. As was reported in these columns in following years, this clover has a very unusual habit of spreading by rhizomes underground. Where it does especially well, it makes very thrifty growth, thickens up rapidly, and the top soil becomes matted with a very heavy root system. This would appear most promising for use in erosion control or situations where a legume of permanent nature is desired. However, as distribution of this clover was made for trials elsewhere, reports have indicated that it behaves very dif-

ferently in different situations and on some soils does very poorly. Some reports also give encouragement and many differences in behavior which are hard to explain. More than likely the failures and limitations of Pellett clover are due to the fact that insofar as we know any strain of bacteria to successfully inoculate the roots has not yet been found in this country. It might be said it remains in the experimental stage. This problem has received wide attention among soil bacteriologists, but apparently the bacterial cultures used for other legumes are of little benefit to Pellett clover. It seems impossible so far to secure any such material from the locality where this clover grows wild as the only place we know is behind the Iron Curtain. It is possible that something highly significant might develop someplace where a plot of this clover has been growing in this country for a number of years; or possibly from contact with some wild legume. A great interest remains in this very unusual clover; and we hope that the problem will eventually be solved, as it seems highly probable that it would become quite useful, were it a true legume.

What's for the bees after the principal honeyflow? Let's take a look to see what the test gardens have to offer on August 15. This will be the subsistence diet as the bees have stored little or no surplus during the past six weeks. With the clover bloom gone, minor nectar sources are now important to keep the bees in shape. We need more rain, although the drouth, so far, has not been severe here like we had in the nineteen thirties.

As usual, we find much bee activity on the flowers of anise hyssop from daylight to dark, whenever the bees are flying. This plant will be in bloom a long while yet if not cut short by the drouth.

Vitex incisa negundo, the bees are visiting freely. There is a little bloom yet of *Echinops ritro* which the bees are working. This is the blue-flowered perennial of Chapman honey plant. The biennial form bloomed earlier.

Nepeta grandiflora attracts the bees freely and blooms intermittently or concurrently most of the summer. Purple loosestrife blooms for a long period in late summer. The bees work it now as usual.

Bird's-foot trefoil is again in bloom.

The bees do not seem to be working it now, at least not while we are watching. The bees worked the earlier bloom this season. Some seasons we have observed the bees on bird's-foot trefoil pretty consistently.

Golden honey plant is in full bloom. The bees are working it although not as heavy as usual. I note the plants, except in protected locations, are showing effects of drouth, so perhaps that is affecting the nectar yield.

There are many bees around the bloom of Simpson honey plant which is just beginning. The fall bloom of *Salvia superba* is just opening and freely visited by bees. *Hyssopus officinalis* is now past full bloom, but the bees are still working it. The bloom of mountain mint is, as usual, humming with bees. So far we detect no flow from heartsease.

The above mentions most of the more conspicuous blooms that we find the bees working in mid-August. Some of these will soon be past and there are many fall flowers to come on later.

Iowa

Bee Stings for Arthritis . . .

I have a good report on the use of bee stings applied on or around the knee which was affected with arthritis. I applied one sting in the morning and one in the evening for a week. Then we had a week of stormy weather when it was difficult to get to the bees. When the weather moderated, I applied a few more, mostly below and on the inside where there is more flesh, and one right on the bone, which seemed to give the best results.

I found an easy way to get the bees. I would smear stiff honey on the back of a spoon and raise the hive cover enough to reach in and daub the spoon on the back of the bees, and rush back to the house before I was frozen (cold weather), covering the bees with my hands to keep them also from freezing.

In the previous two months I could not step on my left foot without severe pain in the knee. Two months later I could walk around without being reminded of any pain. I wish others would try this simple treatment. A word of caution to those not accustomed to bee stings. Likely they will be subject to swelling so I would wait until the swelling is mostly down before applying another sting, and I would not apply the stings on the same spot surrounding the painful area.

(L. A. Syverud, South Dakota)



Perhaps It's Later Than We Think

For the second consecutive year, the honey industry is being helped with its marketing program by the Food Trades Division, Food Distribution Branch, PMA, USDA. Chester Freeman and his capable staff in Washington and 5 regional offices, located in our major marketing areas, thus are continuing to bring to this industry at least hundreds of thousands of dollars of free publicity.

For this invaluable promotional aid, the honey industry is most grateful as it continues to build a more adequate honey marketing program of its own. We recognize fully that we will not always have this help. Neither will we always have price support and the subsidy programs for export and for diversion.

These government programs have come to us because of the work of the American Beekeeping Federation with the help of industry leaders. During the past two years, serious and extensive effort has been made by the Marketing Committee of the Federation to cooperate fully with the honey promotional program and to build a better program for our own. Joaquin Watkins and his over-all committee have made good progress this year and have worked more closely with the state beekeepers' associations. The American Honey Institute has cooperated with the promotional program, and the National Honey Council is preparing, in spite of its newly organized status, to find ways and means of financing an improved honey promotional program.

Success Depends on You and Me

To encourage individual participation in National Honey Week, Oct. 26-31, for the purpose of promoting increased consumption and sale of honey, the Production and Marketing Administration, Food Distribution Branch, has issued a marvelous 28-page kit of helpful material. In the preliminary page of this material, the following statements are made:

"Just as the success of the colony depends upon the activities of the individual worker, so National Honey Week, October 26 to 31, will be successful only if you see to it that people in your community are told about the merits of honey and the value of bees."

"The things to be done are simple: plan events that will be newsworthy; enlist cooperation of news media in letting the public know about them. The principal things you will be concerned with will be displays, meetings, newspapers, radio and television—displays and meetings to make news—newspapers, radio and television to carry the news to the public. Bees and honey are fascinating subjects; National Honey Week provides an occasion to talk about them."

In addition to a general plan suggested for each individual, the kit contains information on how to approach storekeepers and restaurant owners and set up honey displays; three news releases, four feature items for newspapers, radio or television, and a leaflet of honey recipes; several 20-second announcements for radio use; and the help you may expect from TV shows.

This kit of promotional helps we have called "marvelous," but its success depends on you and me doing something with it. Getting the job done will require planning, follow-through at every step and it will take time and effort. We are reportedly 500,000 strong; we are widely scattered throughout this great country of ours. By each of us making an extra effort to promote the consumption and sale of honey, we can have a GREAT NATIONAL HONEY WEEK and help in a major way to solve our own honey marketing problem.

What About the Disease Problem?

For many years, beekeepers have had serious and costly experiences with the several diseases of honey bees. American foulbrood for many years took a heavy toll and still does, but its dread has been lessened by breeding of strains of bees resistant to AFB and through preventive feeding of sulfa drugs.

Nosema has been and still is a source of great loss to beekeepers, taking its toll of adult bees often in an inconspicuous manner but sometimes in a devastating and apparent way.

Then, in more recent years, European foulbrood has become an extremely serious problem to beekeepers in an ever-widening area. It appears to be either a much more virulent form of the disease, as we have previously known it, or perhaps even a different disease. Certainly it is not the disease that formerly was cured by simply requeening with good Italian stock. It strikes quickly and savagely about the third cycle of brood in late spring when bees are shaping up in strength for the honeyflow, reducing strong colonies to a mere handful of bees, and even affecting the adult bees. The recent use of antibiotics, terramycin and streptomycin, offer hope of a prevention or perhaps a cure. The final answer to the EFB problem may come through breeding, inasmuch as some degree of resistance has been observed.

But, is the beekeeping industry going to have to be "saddled" with the expense of labor and drugs in order to produce honey? Are we being placed in the same position as the farmer who through continued use of insecticides, must continue their use because nature's balance has been upset? What have we done to bring about our present EFB plight?

It would appear to us that this problem is sufficiently serious to beekeeping to warrant increased scientific investigation.



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Reg. U.S. Pat. Off.

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Streetsville, Ontario, Canada

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By Air Mail, 75c each

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QUEENS and PACKAGE BEES

at the following prices:



	Queens	Italians Packages w.q.				Starline Queens
		2-lb.	3-lb.	4-lb.		
1-9	\$1.00	\$3.25	\$4.25	\$5.25		\$1.25
10-99	1.00	3.00	4.00	5.00		1.25
100 up	1.00	2.75	3.75	4.75		1.25



Reg. U.S. Pat. Off.

Add 25c for packages with Dadant's Starline Hybrid queens.

We guarantee safe arrival, health certificate and prompt service. Our queens are reared under my personal supervision, our aim is **QUALITY NOT QUANTITY**

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Box 122

Shelbyville, Tennessee

REQUEEN NOW

To insure strong productive colonies next spring, be sure all colonies are headed by vigorous young queens capable of producing full combs of brood.

Such queens are to be had in Island Hybrids (Kelleys Island Hybrid). We have the equipment and stock developed on the Lake Erie Islands and can supply your needs from our Georgia queen yards. We have had many good reports about these queens and feel you can get the same results.

Queen prices balance of season are:

	Island Hybrids	Reg. Rossman Stock
1 to 25	\$1.25 ea.	.80 ea.
26 or more	1.15 ea.	.65 ea.

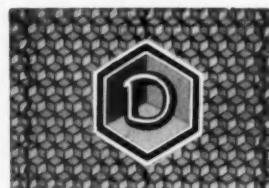
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Save your wax, combs, and cappings. Clean, rendered wax may be shipped to us in any quantity, large or small. Combs, cappings and slumgum should be accumulated and shipped by freight in lots of 100 pounds or more. Write for rendering prices and shipping tags.

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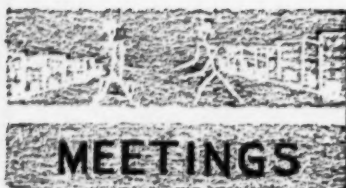
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Convention, Masonic Temple
Edmonton, Alberta
October 29, 30, 31, 1953**

October 29

Alberta Honey Producers; Co-Operative-Annual Meeting.

October 30

A.M.—Panel Discussion. The design, arrangement, maintenance, care and equipment of the Honey House.

P.M.—Labor Saving Devices in the Field; Pollination and Hive Rental.

Evening—Banquet and Entertainment; Commercial and hobbyist's Honey Display.

October 31

A.M.—The Changing Policy in Disease Control.

P.M.—Packing Honey for Marketing; A Year's Experience under the new rules.

Dr. Jamieson, Dominion Apiculturist, and other speakers will be in attendance.

For more details write:

A. S. Bird,
Secretary,
Edmonton, Alberta.

**Eastern Branch of The Tennessee
State Beekeepers Association
Minutes**

August 21, 1953

The Eastern Branch of the Tennessee Beekeepers Association held its annual meeting on August 21, 1953, at the Fountain City Park, Fountain City, Tennessee, with the Knox County Chapter as hosts. Eighty-five people were present, representing fourteen counties and visitors from Kentucky, Illinois, Ohio, Virginia and North Carolina. The meeting was called to order by Mr. A. W. Nine, President of the Tennessee Beekeepers Association. The invocation was given by the Reverend Elliott.

During the morning most interesting and instructive talks were made by: Howard L. Bruer, State Entomologist, G. H. Cale, American Bee Journal, John W. Buchanan, A. I. Root Company, Walter T. Kel-

ley, Walter T. Kelley Company, and Dr. G. M. Bentley, former Tennessee State Entomologist. The minutes of the 1952 meeting were read by Mrs. John H. Faulkner, assistant secretary, due to the absence because of illness of the secretary, Mr. W. D. Reams. The minutes were accepted and approved as read.

A nominating committee was appointed by the president, John W. Snyder, as follows: Roy D. Brown, Cocke County, Frank L. Eldridge, Knox County, and D. C. Tipton, Blount County. Leslie H. Little, State Apiarist, explained the law of inspection work and the moving of bees. The morning session adjourned for a picnic lunch which was enjoyed by all.

The afternoon session was called to order by Mr. Nine. John M. Amos, former State Apiarist, now Entomologist of Virginia Polytechnic Institute, Blacksburg, Virginia, spoke most interestingly on "Beekeeping in Virginia." G. H. Cale, Editor of American Bee Journal, Hamilton, Illinois, gave a very helpful talk on "Swarming." Others who spoke were: W. A. Stevens, Extension Beekeeping Specialist, Raleigh, North Carolina; Walter T. Kelley, Editor of Modern Beekeeping of Clarkson, Kentucky; and John Buchanan of the A. I. Root Company of Medina, Ohio. A panel of experts composed of: J. M. Amos, Walter T. Kelley, W. M. Bridges, W. A. Stevens, G. H. Cale and Dr. G. M. Bentley, answered and discussed questions which had been placed in a "question box" by anyone wishing to ask a question. Prizes were given for the best six questions asked. This proved most interesting and instructive.

The report of the nominating committee was as follows: President—J. D. Humbert, Hamilton County; Vice President—Everette Freshour, Cocke County; Secy.-Treas.—W. D. Reams, Hamblen County; Asst. Secy.-Treas.—Mrs. John H. Faulkner, Hamblen County; Chaplain—W. E. Watson, Jefferson County. The officers selected were elected by proclamation for 1954.

Invitations for the 1954 meeting were given by the Johnson County Chapter to meet at Back Bone Ridge Park and by the Hamilton County Chapter to meet at Harrison Bay Park on Chickamauga Lake. It was voted to accept the invitation of the Hamilton County Chapter. The meeting was adjourned to meet the first Friday in August, 1954 at Harrison Bay Park with the Hamilton County Chapter as host.

W. D. Reams, Secretary

**Middlesex County Beekeepers Assoc.
Waltham, Mass., October 24**

The Middlesex Association will hold its first indoor meeting of the season at winter headquarters at the Mass. State Experimental Station in Waltham on October 24. This will be a catered dinner with all the "fixins" and ticket is by reservation only. Members and beekeeping friends not wishing to attend the dinner may come at 8:30 P.M. to enjoy the meeting and pictures showing activities of the association during the past spring and summer season.

John H. Furber, Sec'y

**Annual Meeting
Texas Beekeepers Assoc.
College Station, October 25-27**

The annual meeting originally scheduled for November 1 to 3 has been changed and will be held Sunday, Monday and Tuesday, October 25-27. The program Sunday evening will be a social gathering or "Bee Buzz" at the home of the Secretary, 1309 Walton Drive, College Station. On Monday and Tuesday, meetings will be held in the Memorial Student Center on the campus of the A & M College of Texas. Meeting rooms, lodging, meals and opportunity for recreation are all under one roof. A block of 20 rooms has been held for beekeepers, \$5.00 single, \$7.00 double. Reservations should be made early. There are also six tourist courts between College and Bryan and two hotels in Bryan.

Texas Beekeepers Assoc.
News Letter

American Bee Journal

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1 lb. Jars, per reshipping carton of 24	1.20	1.00	11 lbs.
1/2 lb. Jars, per reshipping carton of 24	.95	.92	9 lbs.
2 1/2 lb. Sq. Jars for chunk honey, ctn. of 12		1.10	12 lbs.
Sample mailing bottle — 15c each	\$1.20 per doz.		

TIN CONTAINERS — Friction Top Pails with Bails

	Price	Sh. Wt.
5 lb. — Per Carton of 50 — 13c each	\$ 6.00	27 lbs.
5 lb. — Per Carton of 100 — 13c each	11.65	46 lbs.
10 lb. — Per Carton of 50 — 18c each	8.75	44 lbs.
60 lb. Square Cans, in bulk, each	.62	3 lbs.
60 lb. Square Cans, per carton of 24	14.80	72 lbs.

Cellophane Window Front Cartons — All Sizes
Per 100 — \$2.35 Per 500 — \$10.95 Per 1000 — \$21.50

Decorated Cellophane Wrappers — All Sizes
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CAUCASIAN QUEENS VERY GENTLE—Select untested, 1 to 25, \$1.00 each; 25 up, 90c. Black River Apiaries, Currie, N. C.

THREE Banded ITALIAN QUEENS—Good workers. Select untested, 1 to 25, \$1.00 each; 25 up, 90c. Alamanee Bee Co., Graham, N. C.

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YANCEY HUSTLERS—Three-band Italians. They get the honey. Queens balance of season, \$1.00; \$10.00 dozen. Caney Valley Apiaries, Bay City, Texas.

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ABOUT 1000 COLONIES of bees, 10 frame with 1 Dadant depth super and queen mating nuclei. Ideal location for package bee production and wonderful opportunity for pollination project in fast developing state raising community with year around permanent pastures of clovers. Completely equipped outfit for package bees, queens, honey and pollination. Leave the cold winters and enjoy keeping bees in the moderate climate of the beautiful Gulf Coast. Ill health reason for selling. For particulars write G. F. Daniels, Box 388, Picayunne, Miss.

MODERN HONEY PACKING PLANT for sale in Central Texas. Packing approximately one million pounds yearly. Interested parties write Box 43, c/o American Bee Journal.

WE HAVE DISCONTINUED our bottling business and now handle only bulk honey. To clear out our warehouse, we offer at large discount: 250 cases 12/3 lb. Modernistic jars, 75c per cs., 100 cases 12/2 lb. Modernistic jars, 55c per cs., 150 cases 12/2 qt. Ball fruit jars, 75c per cs., 30 cases 50 No. 5 tin, \$4.95 per cs., 25 cases 50 No. 10 tin, \$6.75 per cs., 30 cases 12 per case, Libbey safe edge drinking glasses, 30c per cs. **EQUIPMENT:** 1. Flash heater, \$60; 1 ton mixing tank with reduction gear box, \$95.00; 1 electric labeling machine, \$75.00; 1 16-sheet Cellulose honey filter and pump, \$795.00; 1 Diagraph stencil machine, \$50.00; 1 National semi-automatic labeler, \$475.00; 2 coils 1/2-inch wire strapping and wire strapping machine, \$25.00; 1 100-gallon glass lined honey tank, \$25.00; 5 roller conveyors with standards. Alexander Company, 819 Reynolds Rd., Toledo 7, Ohio.

ENOUGH 8-frame equipment for 50 hives of bees. Sell cheap. Write Rudy Kostal, 5033 So. 24th St., Omaha, Nebr.

25 10-frame hives of bees, 30 deep extracting supers, 82 shallow extracting supers, 25 queen excluders, 1 two-basket extractor, 2 settling tanks, foundation. Honey crop goes with bees. Price \$300.00. C. F. Bohne, Rt. 2, Box 214, Gary, Indiana.

FOR SALE OR RENT—Honey house 16x48 ft., 2 story, with lean 8x48, 16 ft. joist. All honey equipment, good location for bees. John Schroeder, Wentworth, S. Dak.

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FOR SALE—New electro-flo filling machines. Model SA100—\$365.00. Model SA300—\$285.00. F.o.b. Hancock Honey House, Hancock, Iowa.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. **HAMILTON & COMPANY**, 2613 South Yates Ave., Los Angeles 22, Calif.

Copy for this department must reach us not later than the tenth of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

Rate of Classified advertising—13 cents for each word, letter, figure or initial, including the name and address. Minimum ad, ten words.

As a measure of precaution to our readers we require reference of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on comb must guarantee them free from disease or certificate of inspection from authorized inspector. The conditions should be stated to insure that buyer is fully informed.

WANTED—Water white clover honey, truck or car lots; also light amber. Mail sample and lowest cash price. Write Stoller Honey Farms, Latty, Ohio.

BEEWAX AND HONEY WANTED in trade for supplies or cash. Hodgson Bee Supplies Ltd., 565—13th Ave., New Westminster, B. C., Canada.

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WANTED to buy new crop honey in all grades. Highest cash prices. Submit samples. Schultz Honey Farms, Ripon, Wisconsin.

Cash paid for light colored honey. Write Paul Oblack, Loyal, Wis.

HONEY WANTED, in 60's, all grades. Send samples, advise quantity and best price. A. I. Root Co. of Syracuse, 1112-14 East Erie Blvd., Syracuse 3, N. Y.

CUT COMB AND EXTRACTED—Truck lot—white—needed immediately—Cash paid on receipt. Lose Brothers, 206 E. Jefferson St., Louisville 2, Ky.

WRITE FOR SHIPPING TAGS and current quotations on rendered beeswax. Any amount from one pound up bought. If you have 25 pounds or more, save 25c by letting us work it into foundation for you. Walter T. Kelley Co., Clarkson, Kentucky.

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CARLOADS or less of honey and wax. Send sample and price. Alexander Co., 819 Reynolds, Toledo, Ohio.

WANTED—Extra white and light amber honey. Let us ship you the containers. Sell us your honey for CASH on delivery. The Hubbard Apiaries, Manufacturers of Bee Supplies and Comb Foundation, Onsted, Michigan.

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FOR SALE—Extra light amber to white, orange-palmetto honey. Several 55-gal. steel drums; also 5-gal. cans. 12c in drums; \$3.50 per can, 3 cans \$8.00 each. All f.o.b. Murdock. Several hundred pounds good cappings wax. F. H. Nelson, Murdock, Fla.

CLOVER, mixflower poplar extracted honey. Ralph Gamber, 910 State, Lancaster, Pennsylvania.

MICHIGAN'S FINEST WHITE CLOVER HONEY. Thoroughly ripened. New sixties. You will be pleased. Sample, twenty cents. John McCall, Tecumseh, Mich.

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Electro Filling Machines, users and distributors. Write Stoller Honey Farms, Latty, Ohio.

POSITIONS AND HELP WANTED

MAN or WOMAN to work with bees—queen rearing, honey packaging, orchard work. With or without additional experience, additional capital. Absorbing year round work. No drinks, no tobacco. Julian Joubert, Enumclaw, Mt. Rainier Route, State of Washington. Correspondence invited.

WANTED—Experienced or partly experienced man for 1954. Start any time this fall or winter. Year around work. Good wages for willing worker. No drinkers. Part time in South in winter. Box 3, American Bee Journal.

HELP WANTED—Experienced man preferred. Good position for right party. Give references. Howard Weaver, Navesota, Texas.

WANTED

Wish to purchase honey producing outfit. Prefer Midwest. Equipment without bees considered. Box 71, c/o American Bee Journal.

NEBRASKA BEEKEEPER WILL BUY up to 200 10-frame colonies of bees or 10-frame hive bodies with drawn combs. Box N. R., c/o American Bee Journal.

SEEDS AND TREES

EVERFLOWERING LOCUST (Robinia semperflorosa)—Plant this fall. Strong five to six foot trees (trimmed back for mailing), each \$3.25; three for \$8.00, postpaid. Ask for our honey plant catalogue, trees, plants and seeds for fall or spring planting. Pellett Gardens, Atlantic, Iowa.

MISCELLANEOUS

SECTION COMB HONEY production procedure steps—50c. Glossary of Beekeeping Terms—50c. United Industries, Dept. K, Box 449, Madison 1, Wis.

HONEY LABELS

Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

RANCH MAGAZINE—Do you find it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepsman with more information of range sheep than any magazine published. Subscription \$1.00. Hotel Cactus, San Angelo, Texas.

KNOW interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English, by the Bhupen Apiaries (Himalayas), Rangarh, Dist. Nainital, U.P., India, and obtainable from them. Subs. Rs. 7/- or 10 Shillings or \$2.25 per annum. Single copy Rs. 1/4-s. 1/3 or 49 cents (international money order). Payment in mint postage stamps of your country accepted.

Meetings

Wisconsin State
October 29-30
Fort Atkinson

The Wisconsin State Convention will be at Fort Atkinson, October 29 and 30.

We will feature the following items: Crop and colony condition reports from beekeepers present; Inspection report by the Chief Apiary Inspector, John Long; speeches by Dr. C. L. Farrar, Central States Bee Lab., Madison, Mr. Carl Killion, Chief Apiary Inspector of Illinois, Newman Lyle, Sheldon, Iowa, and others.

The meeting of the Board of Managers, the regular business sessions and the banquet will each be conducted as in the past. An early morning tour of the G. B. Lewis Co. plant at Watertown is scheduled for all interested on Friday. A program will be arranged for the Auxiliaries.

A school for beginners is planned consisting of three sessions of two hours each. Led by John Long, the corps of inspectors will discuss and demonstrate things of value to the

beginner. Area Vo-Ag classes will be invited to attend. The Jefferson County Beekeepers Association acting as hosts plan displays of material and equipment by manufacturers and others who supply the industry. A county wide poster contest promoting the industry will be held in the rural schools and the results placed in windows along Fort Atkinson's Main Street.

Details are to be completed for the contest or honey show. This contest must be revived after last years lapse. Being Honey Promotion week the Advertising Committee is intent on the creation of displays in the Fort Atkinson stores to set examples for future efforts by beekeepers in their various localities.

Allan R. Vosburg, Secretary

Lake Region Beekeepers Assoc.

Fergus Falls, Minn., Oct. 6

The Lake Region Beekeepers Association will hold their fall meeting at Sundberg Bros. Farm, two miles north of Fergus Falls on Tuesday evening, October 6. C. D. Floyd, state apiarist, will be there and a good program is planned.

L. W. Sundberg, Sec'y

CHOICE HONEY BEES AND QUEENS



Reg. U.S.
Pat. Off.

Dadant's Starline Hybrids and our 3-Banded Italians Shipments to October 15. Quality, Service and Customer Satisfaction

WIGHT APIARIES
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QUEENS — PACKAGE BEES FOR 1953

Maximum production is most easily assured with superior bees and queens. That's one way we try to help you make money. Superior bees and queens is our motto at all times.

THE VICTOR APIARIES
Uvalde, Texas

BUYING BEES . . .

Is like buying livestock, if you need any at all you need the best you can get. We have been breeding and shipping bees and queens over 25 years and know how to rear the best. So we can guarantee safe arrival and satisfaction.

Queens balance of season.
1 to 50, 90c each; 50 or more, 80c each
TAYLOR APIARIES Luverne, Ala.

REFLECTORIZED SIGNS

Beaded in glass—shines at night—Heavy metal, 14x20 inches, black on yellow. Flanged one end to nail on post or tree. New—different!!! Say "Honey" both sides. Postage extra. Wt. 3 lbs. Each \$2.00.

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Truck loads a specialty. Nuclei made to order. Italian queens.

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HONEY WANTED

Cut Comb and Extracted
Advise what you have

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FREE . . .

A Sample Copy
"Gleanings in Bee Culture"

LOOK IT OVER

YOU WILL LIKE IT
A. I. ROOT CO., Medina, Ohio

Personally Reared Caucasian Queens

\$1.00 EACH

Large Lots . . . 90 cents

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Navasota, Texas

Dadant's Starline Hybrids
Select Italians and Package Bees

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"Where Satisfaction Is a Certainty"



FRAME-GRIP — SEND NOW!

This light modern tool is for easy handling and removal of frames from the bee hive. Orders promptly filled—Satisfaction guaranteed. \$3.00 plus 30c postage fee.

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BE WEATHERWISE

Follow the daily rainfall with a tumbler type rain gauge. Accurate and freeze proof—complete with bracket for mounting on fence post or pole. Price, postpaid, \$1.00.

Dadant & Sons, Inc.
HAMILTON, ILLINOIS



CROP & MARKET

by M. G. Dadant

The Honey Crop

We have no reason to revise our estimates of a month ago relative to the total crop. Improvements in some sections such as California, Texas, and some of the area in the intermountain territory are balanced by a much less than usual prospect for fall flows throughout the whole central areas and even into the northern sections where frosts have cut the crop a little earlier than usual.

Those sections which have at least the equal or much better than last year are West Virginia, Florida, Georgia, Pennsylvania, Ohio, the blue vine sections of Missouri, most of Arkansas, San Luis Valley in Colorado, northern Wyoming and Montana, and probably Washington and Oregon and the prairie provinces of Saskatchewan, Manitoba and Alberta and extending into British Columbia.

Those with not over 75% of last year's crop include Ontario and Quebec, all of New England, New York, New Jersey, and stretching down the Atlantic Coast across through Alabama, Mississippi and Louisiana. Texas, while improving, likely has not over 75% of last year although the heavy rains did help and the cotton crop was quite satisfactory. Much below last year are Illinois, Indiana, and while Michigan has improved it still is short of what was anticipated a month or two ago. Iowa will probably have 60%, although the Red River Valley is fair. Kansas and Nebraska should almost equal last year in some sections.

While the San Luis Valley in Colorado has been good, other sections will not rank up to a year ago and perhaps only 60% of normal; southern Wyoming the same. Idaho, not as much as a year ago and Utah a disappointment, while Nevada improved almost to the equal of last year. Arizona and New Mexico crops are short.

Some reports from northern sections of California and the cotton section make the condition improved

out there but far below 1952 banner crop. We cannot see California with over 60% of last year's total and would estimate that throughout the entire country and the Dominion of Canada there should be at least a 20% drop in crop from the 1952 estimate. This more than equals all of the exports and honey put under loan and sold to the government. There is, of course, considerable quantity already going into foreign channels this year which makes one wonder whether we may not be "selling ourselves short."

Prospects

As mentioned above, prospects are and were not good on September 1. While late alfalfa in some of the alfalfa growing sections did produce nicely, fall crop production in practically all areas will do little more than put the bees in good condition for winter. We would estimate that fall surplus, owing generally to the drought, will be much under what it has been in any previous late year.

Jobbing Prices

Of course the government support is about one cent under 1952-3. Nevertheless, while that seems to be the minimum price offered by packers generally, many are stretching their price considerably above that and even above the support price of last year.

We have heard of good white honey selling as low as 11½ cents F.O.B. shipping point in central areas, cans to be returned, and amber honey at about ten cents.

On the other hand we have heard as high as 11½ cents F.O.B. shipping point in western areas and as high as 14 cents in central areas for good white honey in five gallon cans.

The usual suggestion of price is from 11½ to 12½ cents for good white and approximately 10 cents for amber, F.O.B. shipping points depending somewhat upon the section

of the country. The short crop in California, however, makes for more of a standardization of prices.

Retail Prices

As has always been the case, the retail price varies from east to west. New England prices generally will be about 40 cents for one pound, \$1.50 for five pounds and \$10.00 for 60 pounds with a price of 50 cents per section. In southern areas the price is about 35 cents for one pound, five pounds \$1.10 to \$1.25, and bulk comb \$1.75. The strange thing is that recommendation for five-gallon retail on honey in practically unanimous at \$9.00 throughout the entire country with a few offering a little less and a few a little more.

In central western areas a price of about 35 cents for one pound, \$1.25 for five and \$9.00 for five gallon cans with 45 to 50 cents on comb honey is average. This is reduced somewhat in the plains areas and Rocky Mountain sections to \$1.00 to \$1.10 on fives and 35 to 40 cents for sections. Again an advance in the coastal areas to somewhat the same as in the Central West.

In Canada, jobbing prices are up about one cent to two cents per pound owing to the short crop, and apparently retail prices will advance accordingly.

Publicity

There is no doubt that there is and will be more publicity this year than there has been in recent years. We can only commend the Production and Marketing Administration for really "putting the spark" in the agitation for publicity. Their activity no doubt and their offer of cooperation has done a great deal to bring into the effort many co-operatives and many associations which otherwise would have been idle. The short amount of publicity apparently is in those areas of small population or where the crop has generally been disposed of readily such as the southern and coastal areas in the Southeast.

Honey Wanted—Care and less than car. Top Prices.
C. W. Aeppler Co., Oconomowoc, Wis.

SELL YOUR pure honey



Three sample labels
in black and red. Ac-
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Write for your copy of our Label Catalog. You will find dozens of styles of labels in as many as nine sizes, designed to fit either glass or tin and to make your product shine on the grocer's shelf. Your name and address, plus liquefying instructions, printed to order. Each label in the catalog is actual size and color and can be placed on your container so you can tell just what you want.

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Hamilton, Illinois

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ALL**

Yes sir, these Modernistic Jars really display your honey in a way to catch the customer's eye. A full line of Modernistic Jars is given in our FALL PRICE LIST. Also round jars; chunk honey jars; honey servers; tin cans; cartons; comb honey wrappers; honey handling equipment - - - extractors, tanks, melters, uncapping knives, steam generators, acid boards, fumigator. **QUANTITY DISCOUNTS ON ALL CONTAINERS.** Send for your copy of FALL PRICE LIST.

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